PANASONIC SCCH7

MODEL

SERVICE MANUAL

ORDE[illegible] 084C8

Service Manual

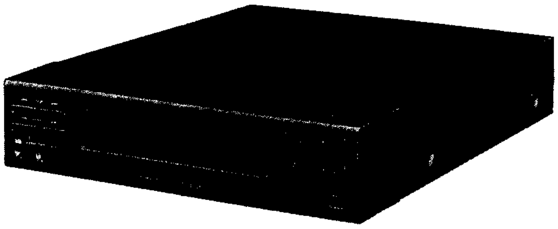
Compact Disc Player

Compact Disc Player

SL-CH7

Color

(K) .... Black Type



Areas

Country Code	Area	Color
(E)	Continental Europe.	(K)
(GC)	Third Region	

System: SC-CH7

NEW MECHANISM SERIES (S0DD110Z)

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

■ SPECIFICATIONS

(DIN 45 500)

■ AUDIO	
Frequency response	2 Hz~20 kHz (±1 dB)
Wow and flutter	Below measurable limit
■ PICKUP	
Wavelength	780 nm
■ GENERAL	
Power consumption	17 W
Dimensions (W×H×D)	215×55×295 mm $(8\tfrac{15}{32}''\times 2\tfrac{5}{32}''\times 11\tfrac{5}{6}'')$
Weight	2.0 kg (4.4 lb.)

Notes:

1. Total harmonic distortion is measured by the digital spectrum analyzer.
2. Specifications are subject to change without notice.
3. Weight and dimensions shown are approximate.

System	Tuner	Amplifier	CD player	Cassette Deck	Speakers
SC-CH7	ST-CH7L	SU-CH7	SL-CH7	RS-CH7	SB-CH7

Technics / Panasonic
(E) (GC)

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■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 μW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laserd diode is dangerous.
2. Do. not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinhelt abgestrahlt.

Wellenlänge: 780 nm
Maximale strahlungsleistung der lasereinhelt: 100 μW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinhelt nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.

CLASS 1
LASER PRODUCT

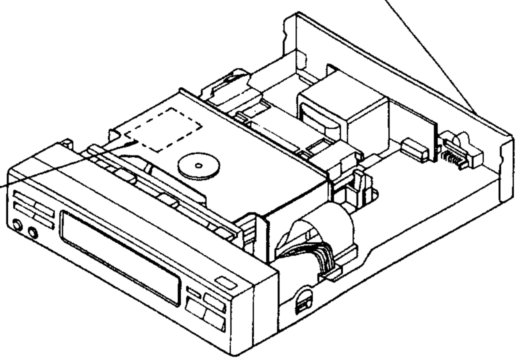
ADVARSEL: USYNLIG LASERSTRÅLING
VED ÅBNING, NÅR SIKKERHEDSAF-
BRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.

VARO! Avattaessa ja
suojalukitus
ohitettaessa olet
alttiina näkymättömälle
lasersäteilylle.
Älä katso säteeseen.

VORSICHT-Unsichtbare
Laserstrahlung, wenn
Abdeckung geöffnet.
Nicht dem Strahl
aussetzen. RQLS0021

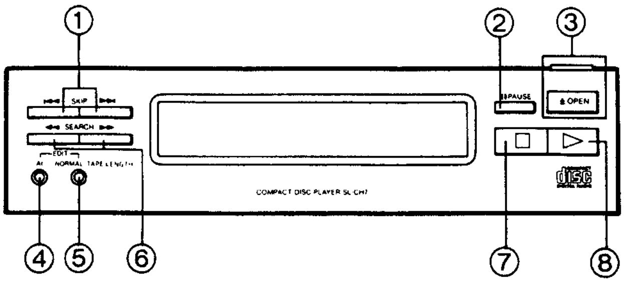
DANGER-Invisible
laser radiation when
open.
AVOID DIRECT EX-
POSURE TO BEAM.

VARNING! Osynlig
laserstrålning när
denna del är öppnad
och spärren är
urkopplad.
Betrakta ej strålen.
RQLS0051



Note:
Refer to the service manual for Model No. SU-CH7, Order No. AD9104082C8 for information on ACCESSORIES. INSTALLATION OF THE SYSTEM, CONNECTIONS and PACKAGING.

■ DISASSEMBLY INSTRUCTIONS



Compact disc player: control section

① **Skip buttons (⏮ SKIP ⏭)**
Press one of these buttons briefly to move the pickup (backward and forward) to the beginning of a specific track.

② **Pause button (❚❚ PAUSE)**

③ **Disc tray open/close button (▲ OPEN, ▲ OPEN/CLOSE)**
Used for opening and closing the disc tray.

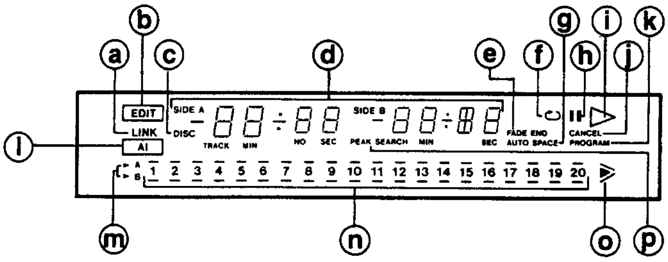
④ **AI edit-recording button ([AI])**
This button is used to make an AI edit-recording.

⑤ **Edit mode button (NORMAL/TAPE LENGTH)**
This button can be used to choose one of the edit modes or to specify the tape length to be used.

⑥ **Search buttons (◀◀ SEARCH ▶▶)**
Use these buttons to move the pickup forward and backward.

⑦ **Stop button (□)**

⑧ **Play button (▷)**



Compact disc player: display section

ⓐ **Link indicator (LINK)**
Illuminates when the unit is in a condition the disc link is possible.

ⓑ **Edit indicator (EDIT)**
Illuminates when edit-recording a CD.

ⓒ **Disc indicator (DISC)**
Illuminates when a disc has been loaded.

ⓓ **Multi-display**
This display shows the track number and elapsed play time of the current track, or the remaining time of the tape while the unit is in the CD-edit mode. ("SIDE A" or "SIDE B" illuminates.)

ⓔ **Fade end indicator (FADE END)**
Illuminates when the unit is normal edit mode, and illuminates to show fading at the end of the tape.

ⓕ **Repeat indicator (↻)**
Illuminates when the repeat mode is activated.

ⓖ **Auto space indicator (AUTO SPACE)**
Illuminates during edit-recording of compact discs, and shows that the auto space function is activated.

ⓗ **Pause indicator (❚❚)**
Illuminates when the pause mode is activated.

ⓘ **Play indicator (▷)**
Illuminates when the play mode is activated.

ⓙ **Program cancel indicator (CANCEL)**
Illuminates when the programmed track can be cancelled.

ⓚ **Program play indicator (PROGRAM)**
Illuminates during program play.

ⓛ **AI edit-recording indicator (AI)**
Illuminates when AI edit-recording mode is activated.

ⓜ **Tape side indicator (▶ A, ▶ B)**
Shows the tape side (A or B) to be recorded on when performing the edit-recording of compact disc.

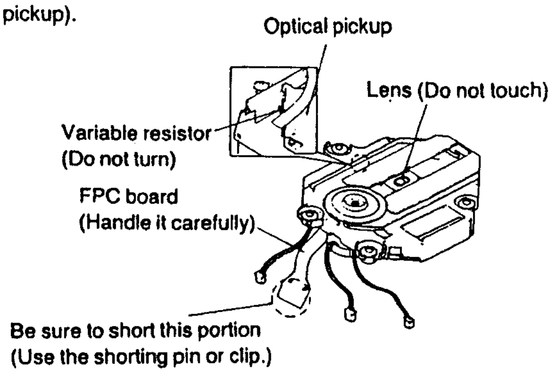
ⓝ **Track number indicator ($\bar{1}$–$\overline{20}$)**
Shows the number of tracks.

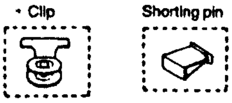
ⓞ **"Over" mark (⊵)**
This indicator illuminates if the total number of tracks on the disc is 21 or more.

ⓟ **Peak search indicator (PEAK SEARCH)**
Illuminates while the CD player automatically scans for the peak level on the CD.
When peak search ends, "PEAK" flashes to indicate the peak level.

■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).


Optical pickup
Lens (Do not touch)
Variable resistor (Do not turn)
FPC board (Handle it carefully)
Be sure to short this portion (Use the shorting pin or clip.)


Clip
Shorting pin

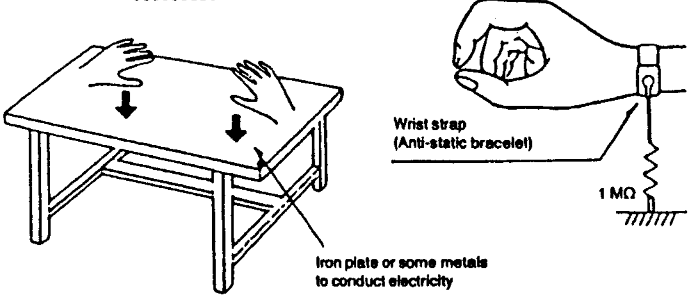
•Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

•Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

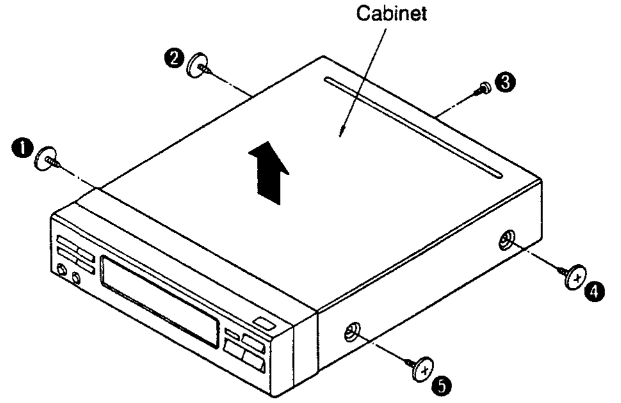
Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).


Wrist strap (Anti-static bracelet)
1 MΩ
Iron plate or some metals to conduct electricity

■ LOCATION OF CONTROLS

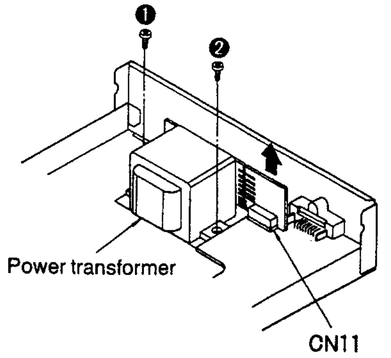
Warning: This product uses a laser diodes. Refer to caution statements on page 2.
ACHTUNG: •Die lasereinheit nicht zerlegen.
•Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.
"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	Removal of the Cabinet
Procedure 1	


Cabinet
❶
❷
❸
❹
❺

•Remove 5 screws (❶~❺).

Ref. No. 2	Removal of the Power Transformer
Procedure 1→2	

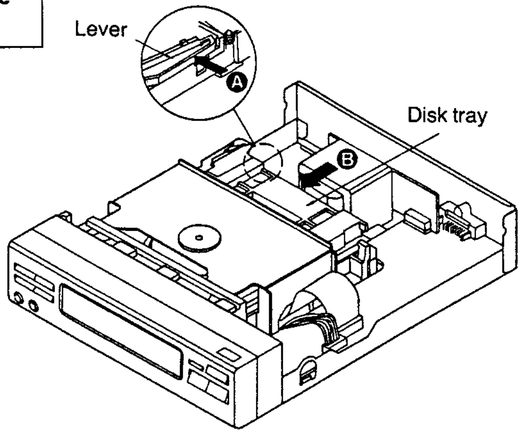

❶
❷
Power transformer
CN11

1. Remove 2 screws (❶, ❷).
2. Remove the connector (CN11) in the direction of arrow.

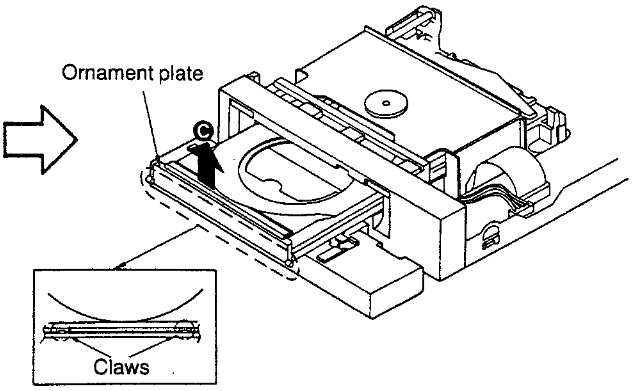
Ref. No. 3

Removal of the Front Panel Unit

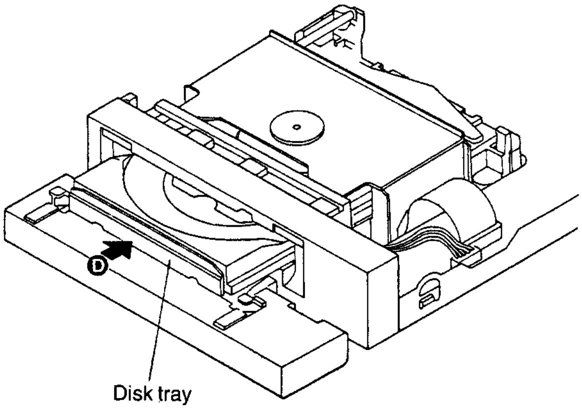
Procedure 1→3


Lever
Ⓐ
Disk tray
Ⓑ

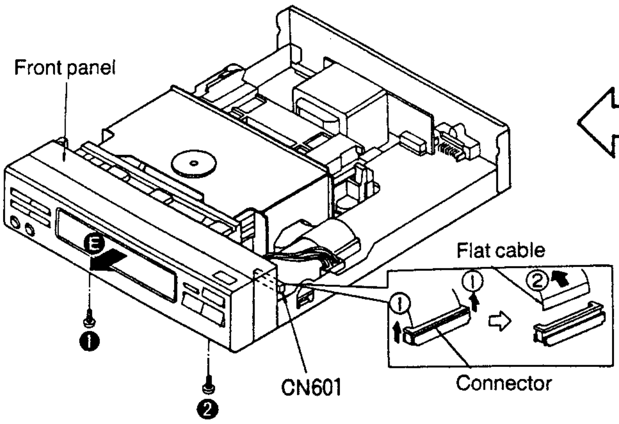
1. Push the rack gear slowly in the direction of the arrow until the disc tray comes up.


Ornament plate
Ⓒ
Claws

2. Remove the 2 claws and then the ornament plat in the direction of arrow Ⓒ.



4. Push the disc tray in the direction of the arrow Ⓓ to insert it in the unit.

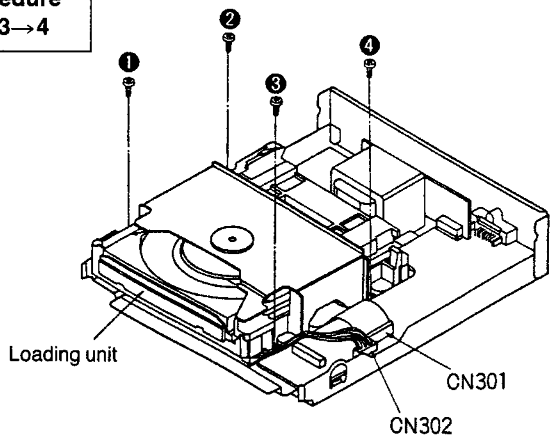

Front panel
Ⓔ
❶
❷
CN601
Flat cable
①
②
Connector

5. Remove the connector (CN601).
6. Remove the screws (❶, ❷).
7. Remove the front panel unit in the direction of arrow Ⓔ.

Ref. No. 4

Removal of the Loading Unit

Procedure 1→3→4

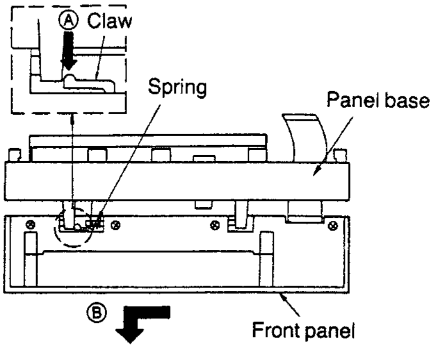

❶
❷
❸
❹
Loading unit
CN301
CN302

1. Remove 2 connectors (CN301, CN302).
2. Remove 4 screws (❶~❹).

Ref. No. 5

Removal of the Front Panel

Procedure 1→3→5

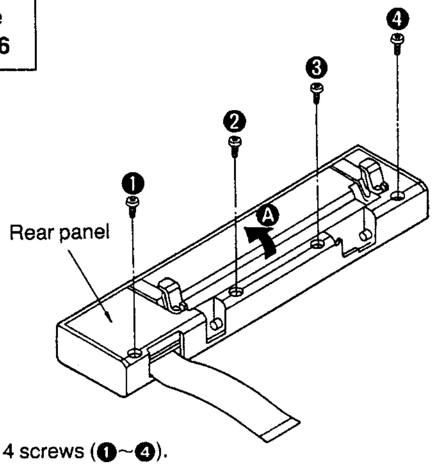

Ⓐ Claw
Spring
Panel base
Ⓑ
Front panel

1. Remove the spring.
2. Push the claw in the direction of arrow Ⓐ and then remove the front panel in the direction of arrow Ⓑ.

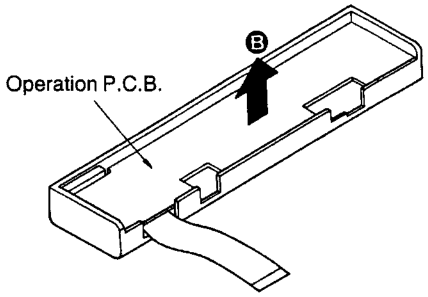
Ref. No.
6

Removal of the Operation P.C.B.

Procedure
1→3→5→6


❹
❸
❷
❶
Ⓐ
Rear panel

1. Remove 4 screws (❶~❹).
2. Remove the rear panel in the direction of arrow Ⓐ.

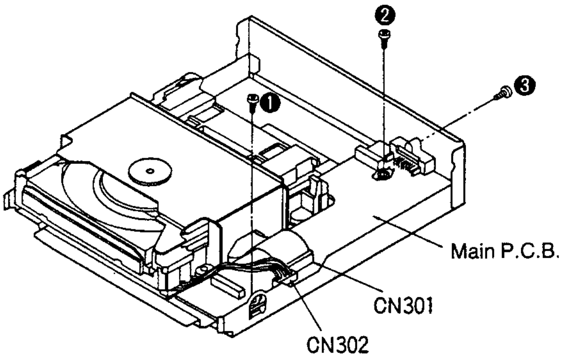

Ⓑ
Operation P.C.B.

3. Remove the operation P.C.B. in the direction of arrow Ⓑ.

Ref. No.
7

Removal of the Main P.C.B.

Procedure
1→2→3→7

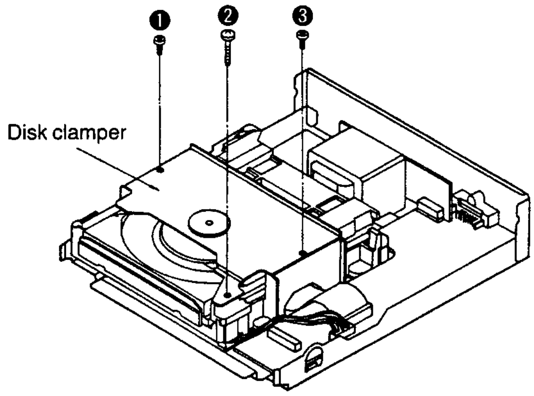

❷
❶
❸
Main P.C.B.
CN301
CN302

1. Remove 3 screws (❶~❸).
2. Remove 2 connectors (CN301, CN302).

Ref. No.
8

Removal of the Disk Clamper

Procedure
1→3→8

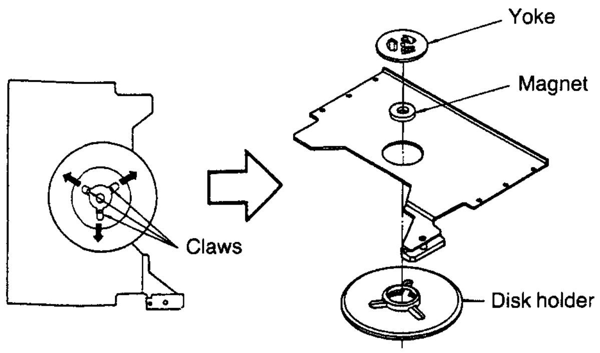

❶
❷
❸
Disk clamper

- Remove 3 screws (❶~❸).

Ref. No.
9

Removal of the Magnet and Holder

Procedure
1→3→8→9

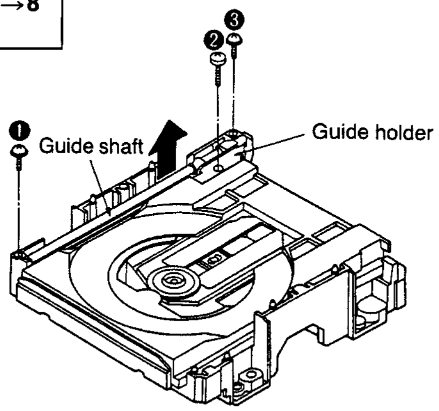

Yoke
Magnet
Claws
Disk holder

- Remove 3 claws.

Ref. No.
10

Removal of the Guíde Shaft and Guide Shaft Holder

Procedure
1→3→4→8
→10

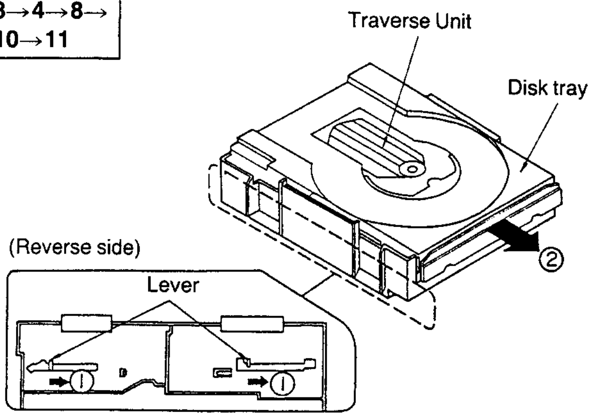

❸
❷
❶
Guide shaft
Guide holder

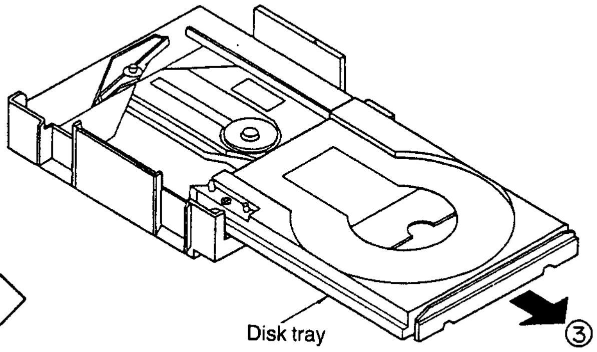
1. Remove 3 screws (❶~❸).
2. Remove the guide shaft and guide shaft holder in the direction of arrow.

Ref. No.
11

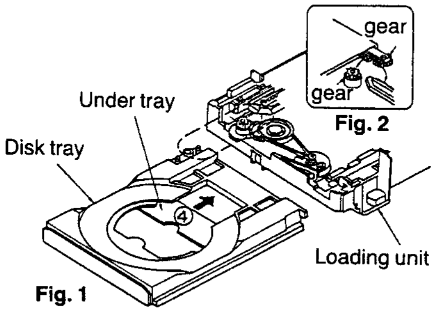
Removal of the Disk Tray

Procedure
1→3→4→8→
10→11


Traverse Unit
Disk tray
②
(Reverse side)
Lever
①
①



1. Move the lever in the direction of arrow ① until the traverse unit goes down and the disc tray slightly slides in the direction of arrow ②.
2. Slide the disc tray in the direction of arrow ②.
3. Remove the disc tray in the direction of arrow ③.

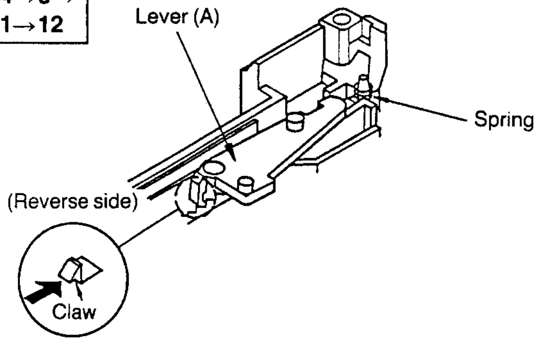

gear
gear
Fig. 2
Under tray
Disk tray
④
Loading unit
Fig. 1

1. Slide the under tray fully in the direction of arrow ④. (Refer to Fig. 1.)
2. Slide the disc tray so that the gears bite each other as shown in Fig. 2.

Ref. No.
12

Removal of the Lever (A)

Procedure
1→3→4→8→
10→11→12

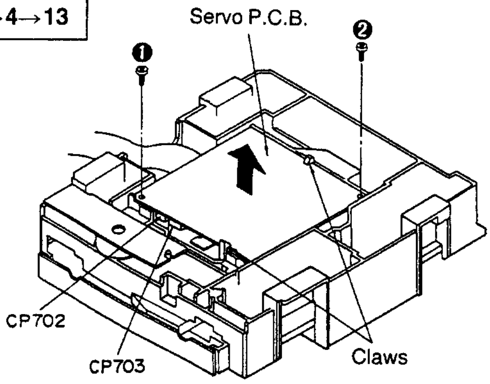

Lever (A)
Spring
(Reverse side)
Claw

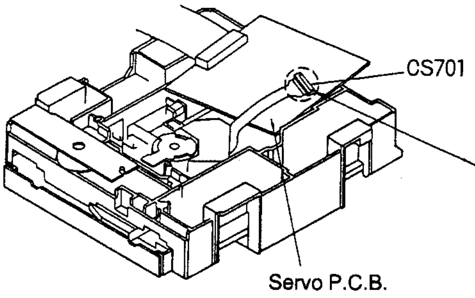
1. Remove the spring.
2. Push the claw in the direction of arrow.

Ref. No.
13

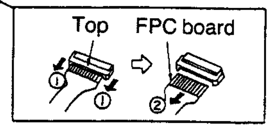
Removal of the Servo P.C.B.

Procedure
1→3→4→13


Servo P.C.B.
❶
❷
CP702
CP703
Claws

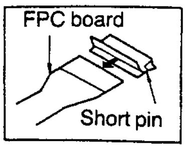

CS701
Servo P.C.B.

- Removal of the FPC board Push the top of the connector in the direction of the arrow ①, and then pullout the flat cable.


Top
FPC board
①
①
②

1. Remove 2 screws. (❶, ❷).
2. Remove 2 claws.
3. Remove the servo P.C.B. in the direction of arrow.
4. Remove 2 connectors (CP702, CP703).
5. Remove the F.P.C. board (S701).

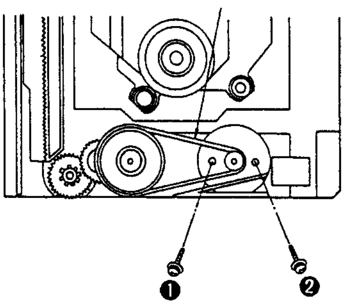
Note:
Insert a short pin into the traverse deck's FPC board.

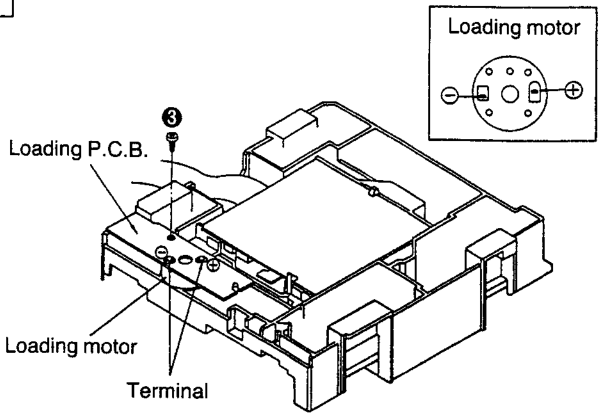

FPC board
Short pin

Ref. No.
14

Removal of the Loading P.C.B. and Loading Motor.

Procedure
1→3→4→8→
10→11→12→14



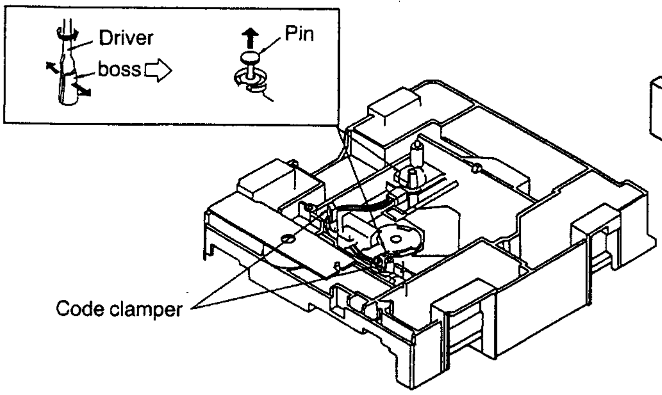

Loading motor
⊖
⊕
❸
Loading P.C.B.
Loading motor
Terminal

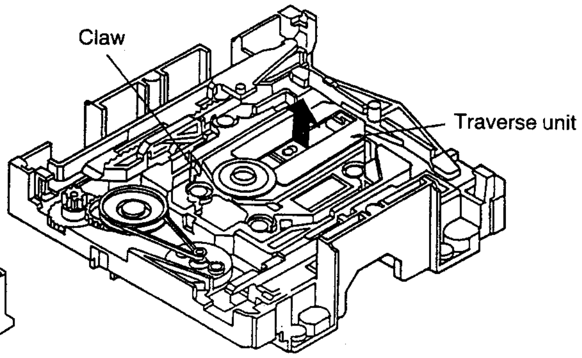
1. Remove the belt.
2. Remove 2 screws (❶, ❷).
3. Remove the screw (❸).
4. Unsolder the 2 terminal of loading motor.

Ref. No.
15

Removal of the Traverse Unit

Procedure
1→3→4→8→
10→11→13→15


Driver
boss
Pin
Code clamper

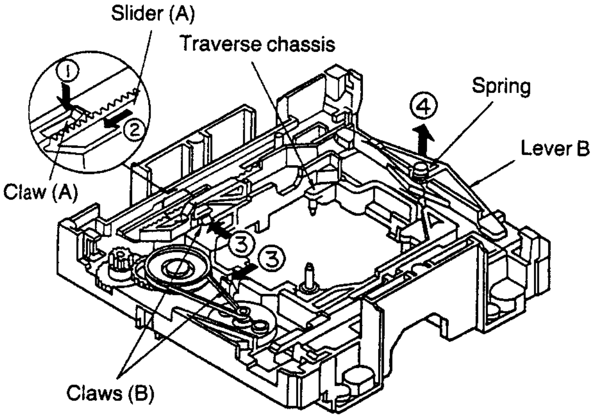

Claw
Traverse unit

1. Release the cables from the code clampers.
2. Remove 2 pin in the direction of arrow.
3. Remove the claw and remove the traverse unit in the direction of arrow.

Ref. No.
16

Removal of the Traverse Chassis and Lever B

Procedure
1→3→4→8→
10→11→12→13→
15→16


Slider (A)
Traverse chassis
①
②
Claw (A)
④
Spring
Lever B
③
③
Claws (B)

■ **Remove the traverse chassis.**

1. Push the claw (A) in the direction of arrow ①, and then move the slider (A) in the direction of arrow ②.
2. Push 2 claws (B) in the direction of arrow ③, and then remove the traverse chassis.

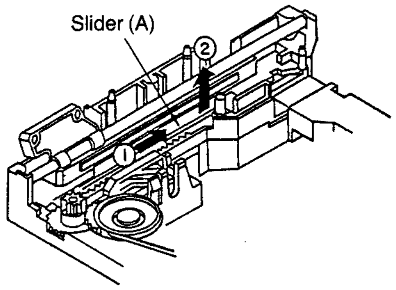
■ **Remove the lever (B)**

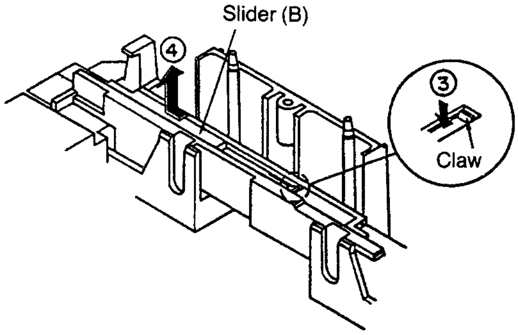
1. Push the claw (A) in the direction of arrow ①, and then move the lever (A) in the direction of arrow ②.
2. Remove the spring.
3. Remove the lever (B) in the direction of arrow ④.

Ref. No.
17

Removal of the Slider (A) and Slider (B)

Procedure
1→3→4→8→10→11→12→13→15→16→17




Slider (B)
④
③
Claw

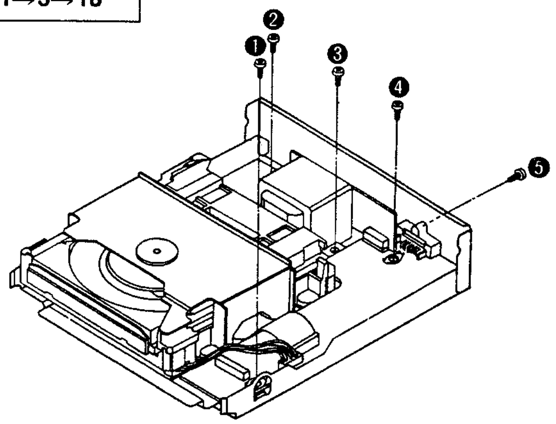
- ■ Removal of the slider (A)
- •Move the slider (A) in the direction of arrow ①, and remove the lod (A) in the direction of arrow ②.

- ■ Removal of the slider (B)
- •Push the claw in the direction of arrow ③, and remove the slider (B) in the direction of arrow ④.

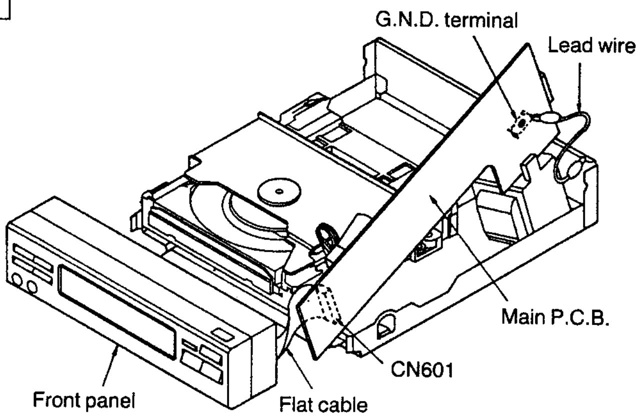
Ref. No.
18

Check of the Main P.C.B.

Procedure
1→3→18



1. Remove 5 screws (❶~❺).


G.N.D. terminal
Lead wire
Main P.C.B.
CN601
Front panel
Flat cable

2. Connect the flat cable to CN601 as shown in figure.
3. Connect the G.N.D terminal to the chassis by the lead wire.
4. Check the main P.C.B. as shown in the figure.

Ref. No.
19

Check of the Operation P.C.B. and Servo P.C.B

Procedure
1→3→5→6→19

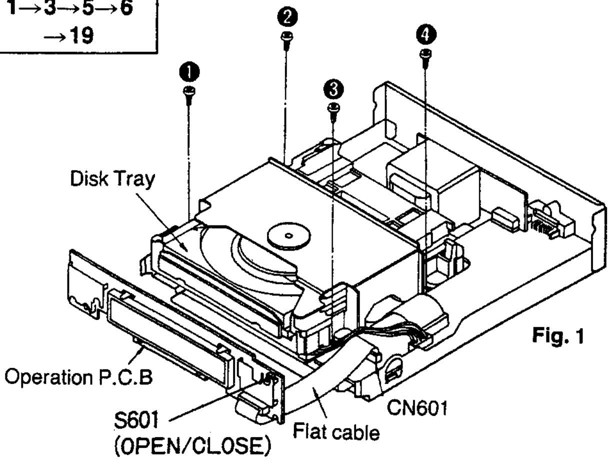

❷
❹
❶
❸
Disk Tray
Operation P.C.B
S601
(OPEN/CLOSE)
Flat cable
CN601

Fig. 1

To play disk

1. push S601 so that the disc tray comes up.
2. Place the test disk on the tray. Then, push S604 to set the test disc.
3. Push S604 to start the test disk play.

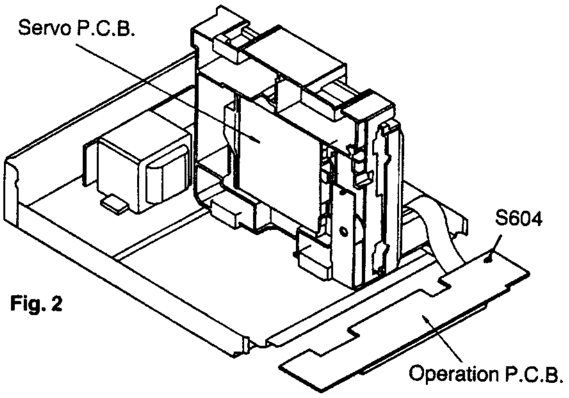

Servo P.C.B.
S604
Operation P.C.B.

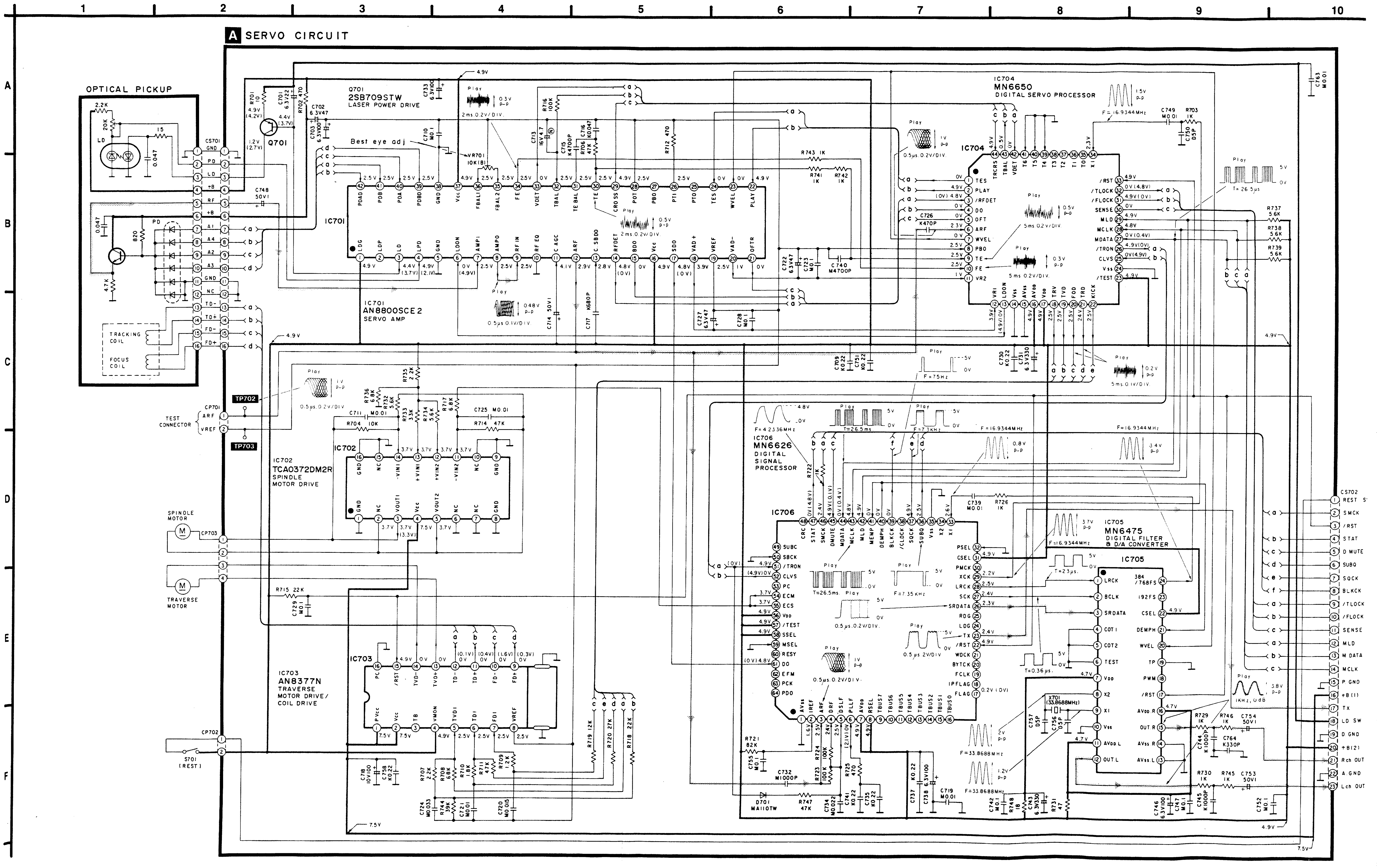
Fig. 2

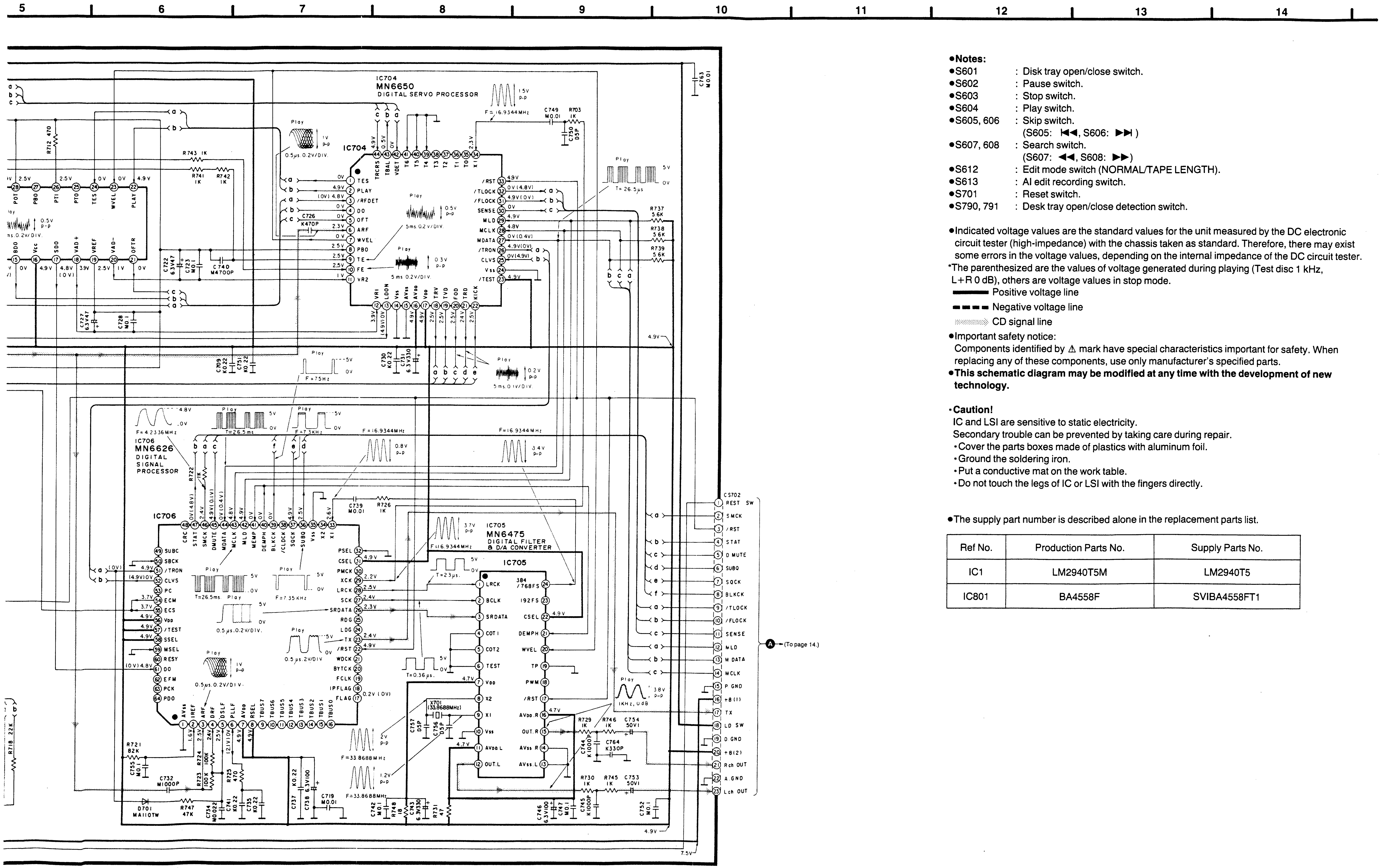
1. Connect the flat cable to CN601 as shown in Fig. 1.
2. Remove 2 screws (❶~❹).
3. Place the loading unit sideways as shown in Fig. 2.

Note:
Make sure not to damage the flat cable.

4. Detatch the operation P.C.B. and the servo P.C.B. as shown in Figure.

■ SCHEMATIC DIAGRAM (Parts list on pages 35~38)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
A SERVO CIRCUIT
OPTICAL PICKUP
LD
PD
TRACKING COIL
FOCUS COIL
CS701
GND
PD
LD
+B
RF
A1
A4
A2
A3
NC
TD-
TD+
FD-
FD+
Q701
2SB709STW
LASER POWER DRIVE
Best eye adj
VR701 10K(B)
IC701
AN8800SCE2
SERVO AMP
PDAO
PDB
PDA
PDBO
GND
Vcc
FBAL1
FBAL2
FE
VDET
TBAL
TE BAL
TE
CROSS
POT
PBO
PTI
PTO
TES
WVEL
PLAY
LDG
LDP
LD
LPD
LDON
AMPI
AMPO
RF IN
RF EQ
C AGC
ARF
C SBDO
RFDET
BDO
SDO
VAD+
VREF
VAD-
OFTR
Play
2ms.0.2V/DIV.
0.5µs.0.1V/DIV.
IC704
MN6650
DIGITAL SERVO PROCESSOR
F=16.9344MHz
TES
PLAY
/RFDET
DO
OFT
ARF
WVEL
PBO
TE
FE
VR2
/RST
/TLOCK
/FLOCK
SENSE
MLD
MCLK
MDATA
/TRON
CLVS
Vss
/TEST
TRCRS
TBAL
VDET
X1
XI
VRI
LDON
Vss
AVss
AVdd
Vdd
TRV
TVD
FOD
TRD
KICK
5ms.0.2V/DIV.
0.5µs.0.2V/DIV.
T=26.5µs
F=75Hz
5ms.0.1V/DIV.
TEST CONNECTOR
CP701
ARF
VREF
TP702
TP703
IC702
TCA0372DM2R
SPINDLE MOTOR DRIVE
GND
NC
-VIN1
+VIN1
+VIN2
-VIN2
VOUT1
Vcc
VOUT2
SPINDLE MOTOR
TRAVERSE MOTOR
CP703
IC703
AN8377N
TRAVERSE MOTOR DRIVE/COIL DRIVE
PC
/RST
TVD-
TVD+
TD-
TD+
FD-
FD+
PVcc
Vcc
TB
VMON
TVDI
TDI
FDI
VREF
CP702
S701 (REST)
IC706
MN6626
DIGITAL SIGNAL PROCESSOR
F=4.2336MHz
T=26.5ms
F=7.35KHz
F=16.9344MHz
CRC
STAT
SMCK
DMUTE
MDATA
MCLK
MLD
MEMP
DEMPH
BLKCK
/CLOCK
SQCK
SUBQ
X2
X1
SUBC
SBCK
/TRON
CLVS
PC
ECM
ECS
Vdd
/TEST
SSEL
MSEL
RESY
DO
EFM
PCK
PDO
PSEL
CSEL
PMCK
XCK
LRCK
SCK
SRDATA
RDG
LDG
TX
/RST
WDCK
BYTCK
FCLK
IPFLAG
FLAG
AVss
IREF
ARF
DRF
DSLF
PLLF
AVdd
RSEL
TBUS7
TBUS6
TBUS5
TBUS4
TBUS3
TBUS2
TBUS1
TBUS0
T=0.36µs
T=2.3µs
F=33.8688MHz
X701 (33.8688MHz)
D701 MA110TW
IC705
MN6475
DIGITAL FILTER & D/A CONVERTER
LRCK
BCLK
SRDATA
COT1
COT2
TEST
Vdd
X2
X1
Vss
AVdd L
OUT L
384/768FS
192FS
CSEL
DEMPH
WVEL
TP
PWM
/RST
AVdd R
OUT R
AVss R
AVss L
1KHz, 0dB
CS702
REST
SMCK
/RST
STAT
D MUTE
SUBQ
SQCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
M DATA
MCLK
P GND
+B(1)
TX
LD SW
D GND
+B(2)
Rch OUT
A GND
Lch OUT
4.9V
7.5V


5
6
7
8
9
10
11
12
13
14
IC704
MN6650
DIGITAL SERVO PROCESSOR
IC706
MN6626
DIGITAL SIGNAL PROCESSOR
IC705
MN6475
DIGITAL FILTER & D/A CONVERTER
X701 (33.8688MHz)
CS702
REST SW
SMCK
/RST
STAT
D MUTE
SUBQ
SQCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
M DATA
MCLK
P GND
+B(1)
TX
LD SW
D GND
+B(2)
Rch OUT
A GND
Lch OUT
A (To page 14.)
D701 MA110TW
F=16.9344MHz
F=33.8688MHz
F=4.2336MHz
Play

- **Notes:**
- S601 : Disk tray open/close switch.
- S602 : Pause switch.
- S603 : Stop switch.
- S604 : Play switch.
- S605, 606 : Skip switch.
  (S605: ⏮, S606: ⏭)
- S607, 608 : Search switch.
  (S607: ◀◀, S608: ▶▶)
- S612 : Edit mode switch (NORMAL/TAPE LENGTH).
- S613 : AI edit recording switch.
- S701 : Reset switch.
- S790, 791 : Desk tray open/close detection switch.

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

*The parenthesized are the values of voltage generated during playing (Test disc 1 kHz, L+R 0 dB), others are voltage values in stop mode.

━━━━ Positive voltage line

▬ ▬ ▬ ▬ Negative voltage line

▒▒▒▒ CD signal line

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- **This schematic diagram may be modified at any time with the development of new technology.**

• Caution!

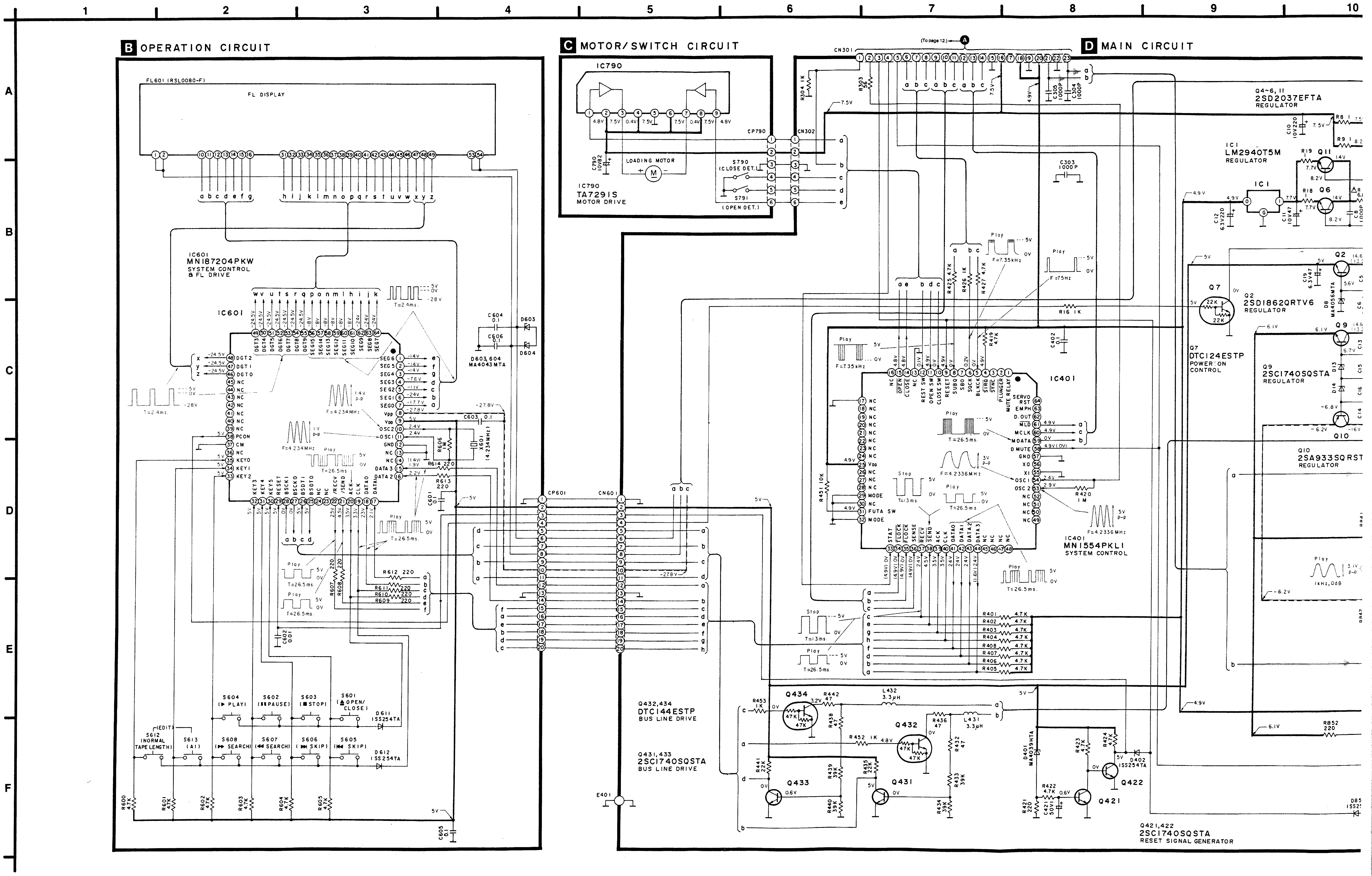
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

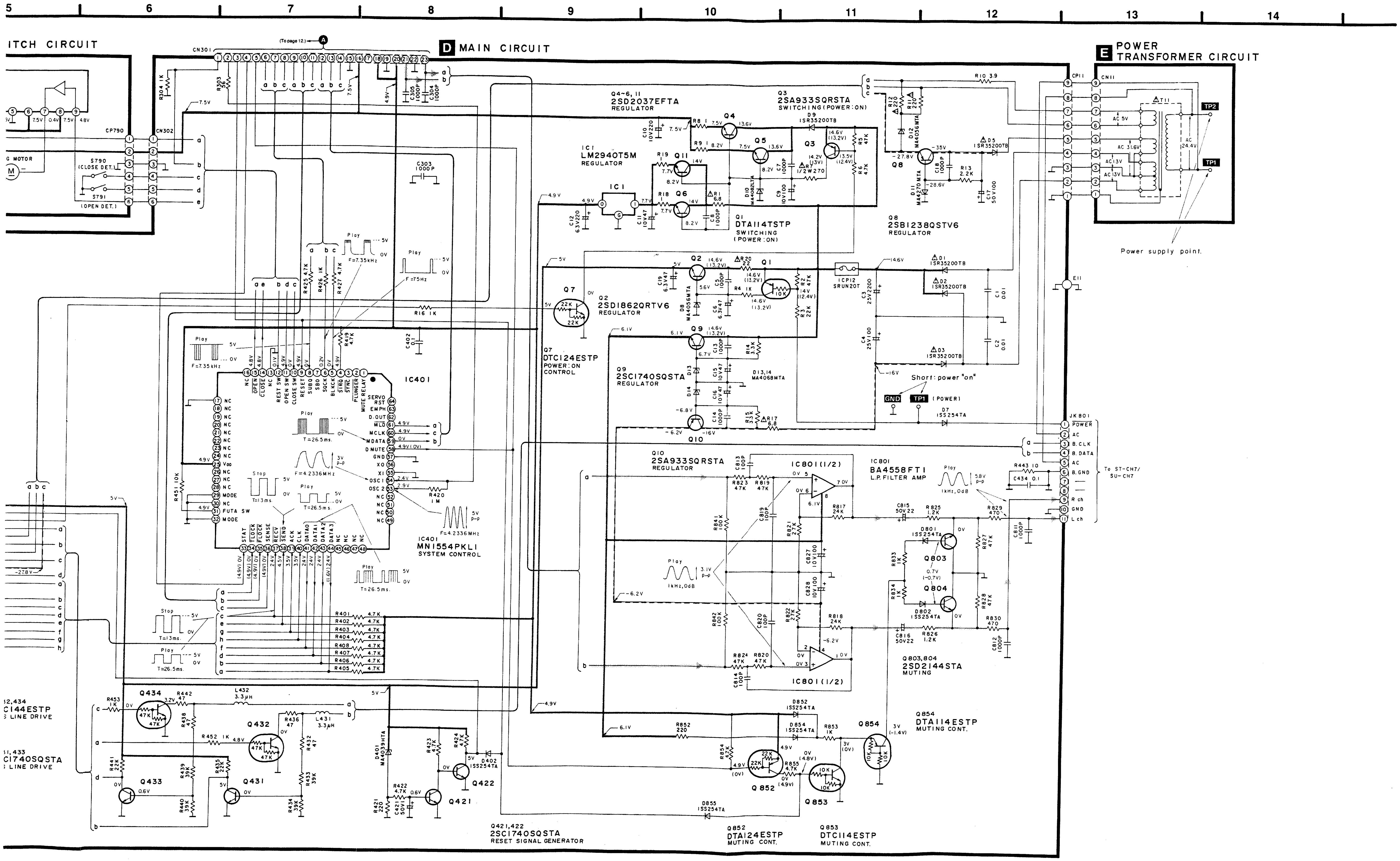
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

- The supply part number is described alone in the replacement parts list.

Ref No.	Production Parts No.	Supply Parts No.
IC1	LM2940T5M	LM2940T5
IC801	BA4558F	SVIBA4558FT1

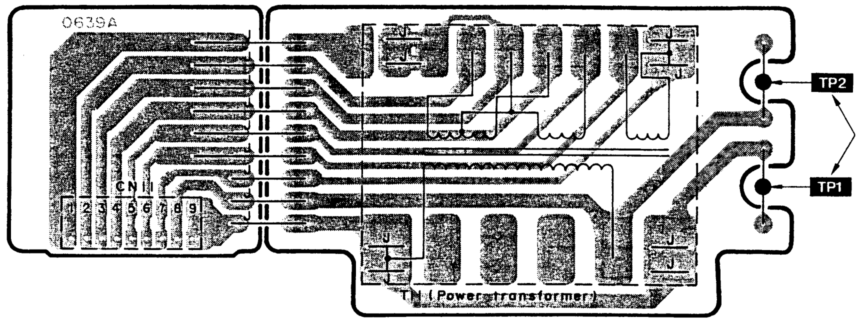
■ SCHEMATIC DIAGRAM (Parts list on pages 35~38)


B OPERATION CIRCUIT
FL601 (RSL0080-F)
FL DISPLAY
IC601
MN187204PKW
SYSTEM CONTROL & FL DRIVE
X601 (4.234MHz)
D603, 604
MA4043MTA
S604 (▶ PLAY)
S602 (▮▮ PAUSE)
S603 (■ STOP)
S601 (▲ OPEN/CLOSE)
D611 1SS254TA
S612 (NORMAL TAPE LENGTH)
(EDIT)
S613 (AI)
S608 (▶▶ SEARCH)
S607 (◀◀ SEARCH)
S606 (▶▶| SKIP)
S605 (|◀◀ SKIP)
D612 1SS254TA
CP601
CN601
C MOTOR/SWITCH CIRCUIT
IC790
TA7291S
MOTOR DRIVE
LOADING MOTOR
S790 (CLOSE DET.)
S791 (OPEN DET.)
CP790
CN302
CN301
(To page 12.) A
D MAIN CIRCUIT
IC401
MN1554PKL1
SYSTEM CONTROL
Q432, 434
DTC144ESTP
BUS LINE DRIVE
Q431, 433
2SC1740SQSTA
BUS LINE DRIVE
E401
Q421, 422
2SC1740SQSTA
RESET SIGNAL GENERATOR
D401 MA4039HTA
D402 1SS254TA
Q4~6, 11
2SD2037EFTA
REGULATOR
IC1
LM2940T5M
REGULATOR
Q7
DTC124ESTP
POWER ON CONTROL
Q2
2SD1862QRTV6
REGULATOR
Q9
2SC1740SQSTA
REGULATOR
Q10
2SA933SQRST
REGULATOR
D8 MA4056MTA
1kHz, 0dB
F=4.234MHz
F=4.2336MHz
F=7.35kHz
F=75Hz
T=26.5ms.
T=2.4ms.
T=13ms.

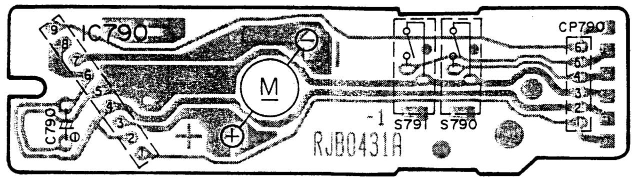

ITCH CIRCUIT
D MAIN CIRCUIT
E POWER TRANSFORMER CIRCUIT
(To page 12) A
CN301
CN302
CP790
MOTOR
S790 (CLOSE DET.)
S791 (OPEN DET.)
Q4~6, 11 2SD2037EFTA REGULATOR
Q3 2SA933SQRSTA SWITCHING (POWER: ON)
IC1 LM2940T5M REGULATOR
Q1 DTA114TSTP SWITCHING (POWER: ON)
Q8 2SB1238QSTV6 REGULATOR
Q2 2SD1862QRTV6 REGULATOR
Q7 DTC124ESTP POWER: ON CONTROL
Q9 2SC1740SQSTA REGULATOR
Q10 2SA933SQRSTA REGULATOR
D13,14 MA4068MTA
ICP12 SRUN20T
Short: power "on"
GND TP1 (POWER)
TP1
TP2
Power supply point.
CP11
CN11
T11
E11
JK801
POWER
AC
B.CLK
B.DATA
AC
B.GND
R ch
GND
L ch
To ST-CH7/ SU-CH7
IC801 BA4558FT1 L.P.FILTER AMP
IC801 (1/2)
Q803,804 2SD2144STA MUTING
Q854 DTA114ESTP MUTING CONT.
Q852 DTA124ESTP MUTING CONT.
Q853 DTC114ESTP MUTING CONT.
IC401 MN1554PKL1 SYSTEM CONTROL
Q421,422 2SC1740SQSTA RESET SIGNAL GENERATOR
Q432,434 DTC144ESTP LINE DRIVE
Q431,433 2SC1740SQSTA LINE DRIVE
Play
Stop
F=7.35kHz
F=75Hz
T=26.5ms.
T=13ms.
F=4.2336MHz
1kHz, 0dB
5
6
7
8
9
10
11
12
13
14

■ PRINTED CIRCUIT BOARDS

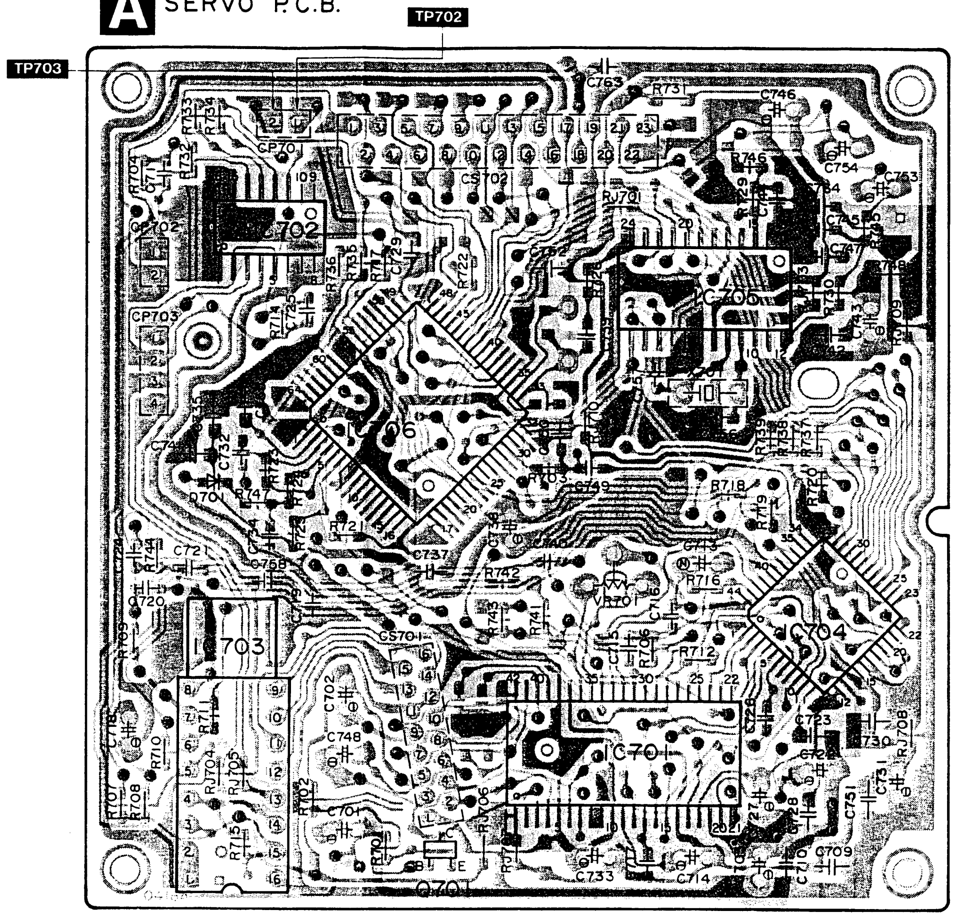
E POWER TRANSFORMER P.C.B.


0639A
CN1
TP2
TP1
Power supply point
T1 (Power transformer)

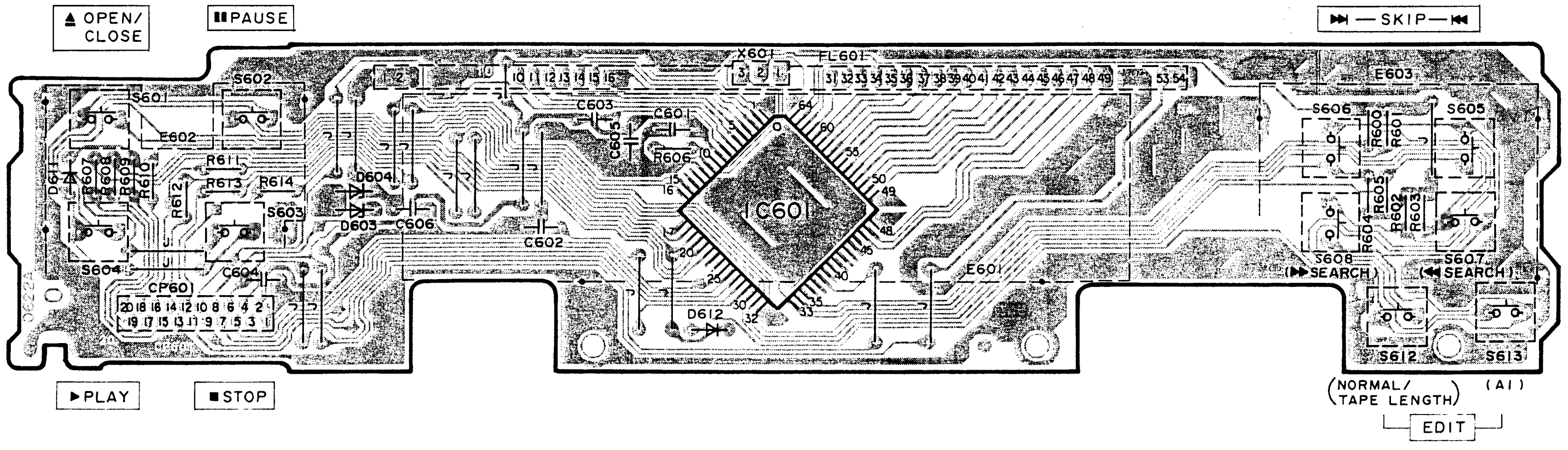
C MOTOR/SWITCH P.C.B.

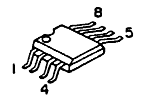
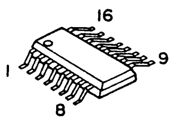
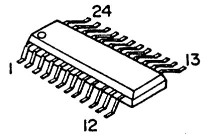
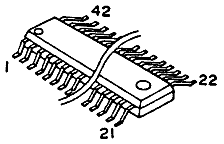
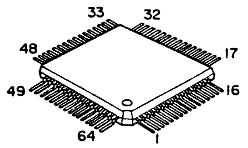
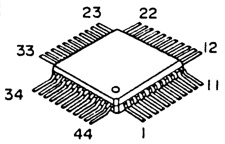
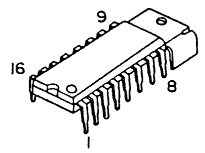
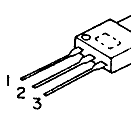
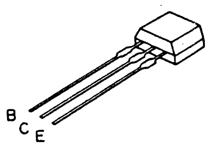
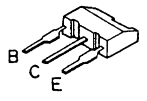
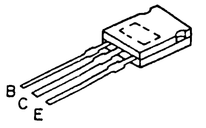
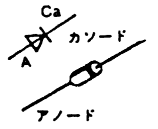
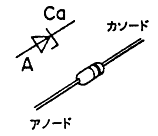
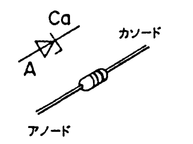

IC790
M
S791
S790
CP790
RJB0431A

A SERVO P.C.B.

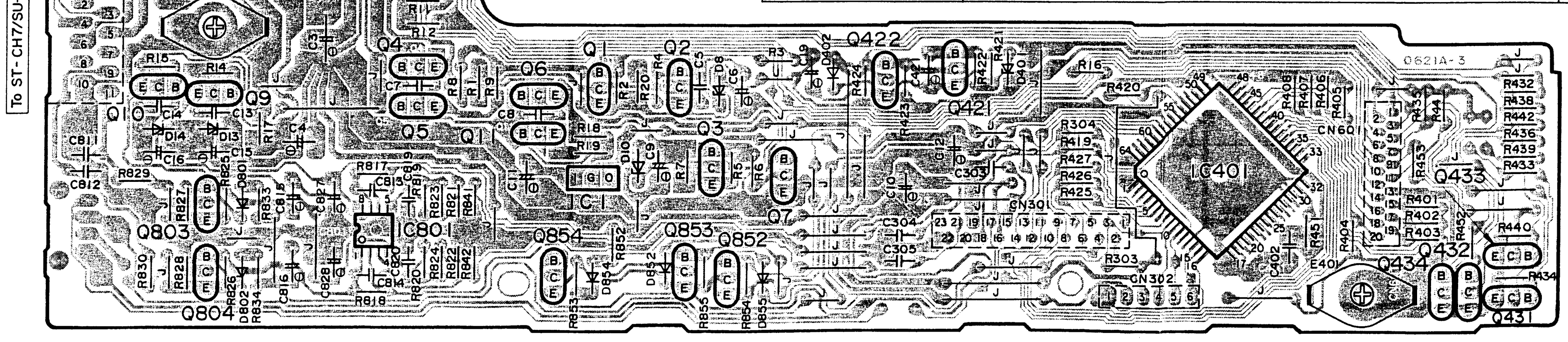

TP702
TP703
IC702
IC703
IC704
IC701
CP701
CP703

B OPERATION P.C.B.

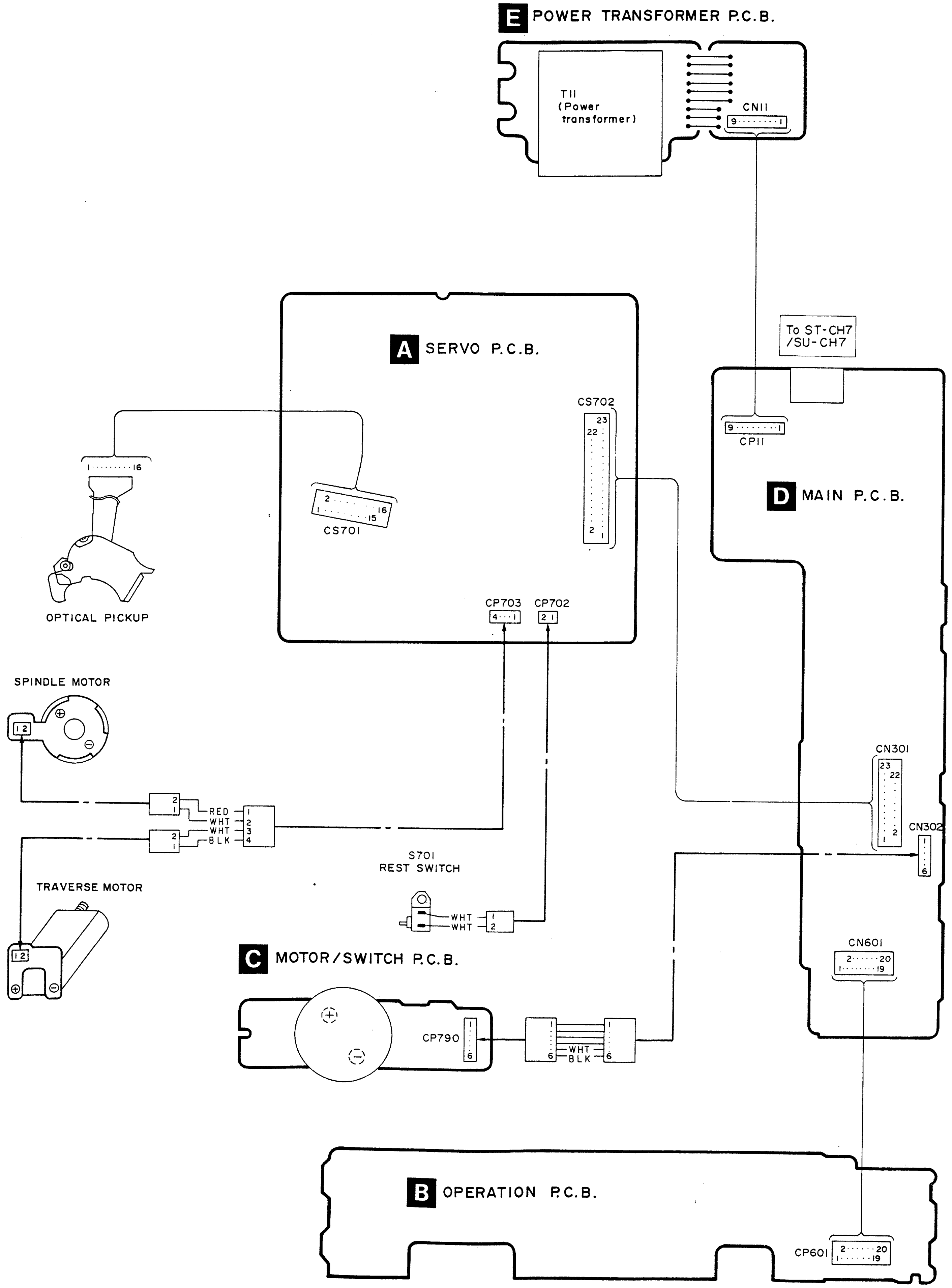

▲ OPEN/ CLOSE
❚❚PAUSE
⏭ — SKIP — ⏮
▶PLAY
■STOP
(NORMAL/ TAPE LENGTH)
(AI)
EDIT
IC601
FL601
S601
S602
S603
S604
S605
S606
S607 (◀◀SEARCH)
S608 (▶▶SEARCH)
S612
S613

BA4558FT1 	TCA0372DM2R 	MN6475 	AN8800SCE2 		MN6626 MN1554PKL1 MN187204PKW	MN6650 	AN8377N 
LM2940T5M  1. Vin 2. GND 3. Vout		DTA114ESTP DTC114ESTP DTA124ESTP DTC124ESTP DTC144ESTP 2SA933SQRSTA	2SC1740SQSTA 2SD2144STA	2SB1238QSTV6 2SD1862QRTV6 	2SD2037EFTA 	1SS254TA 1SR35200TB 	MA4270MTA 
							MA4039HTA MA4056MTA MA4068MTA MA4082LTA MA4043MTA

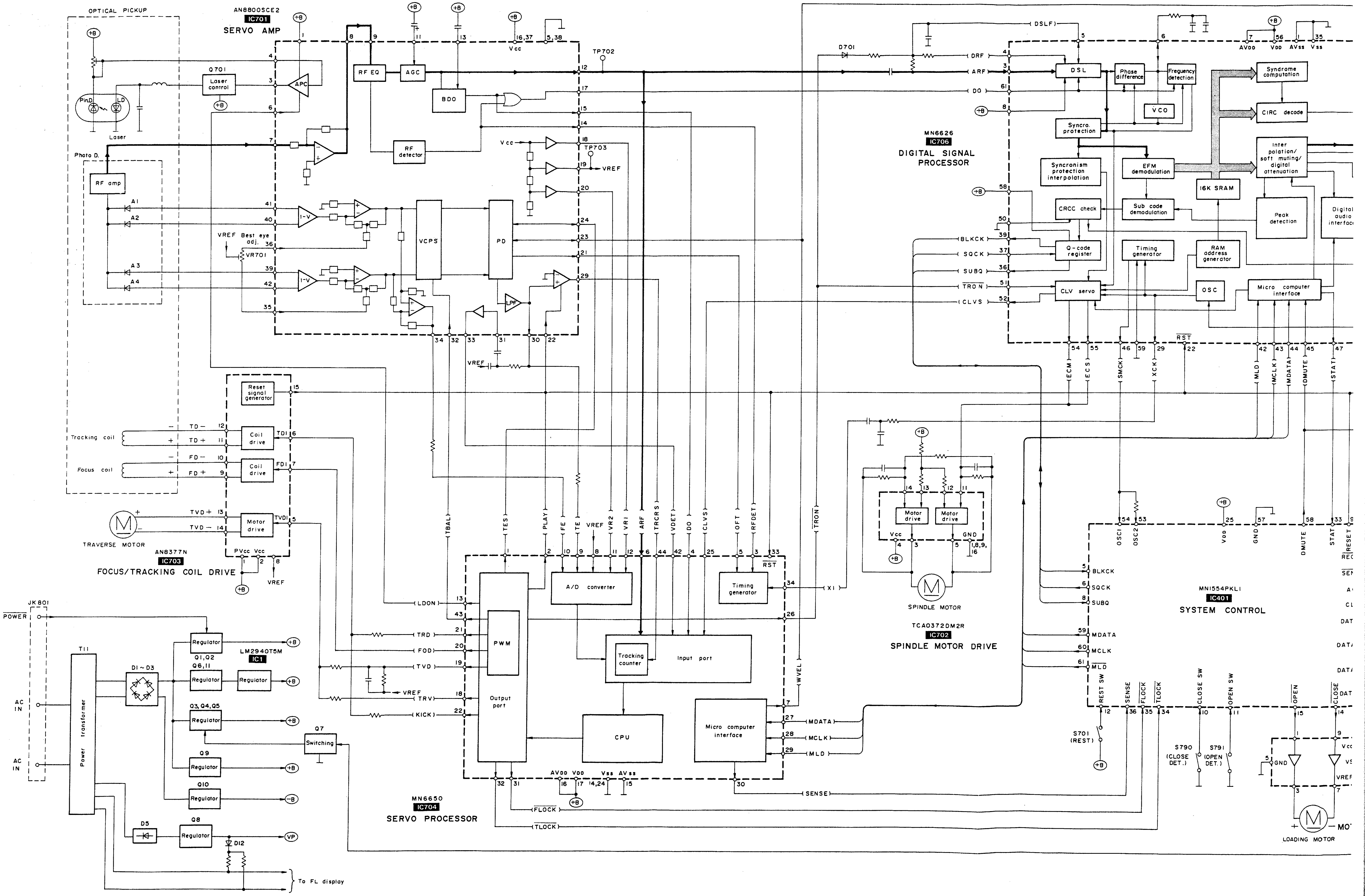
D MAIN P.C.B.

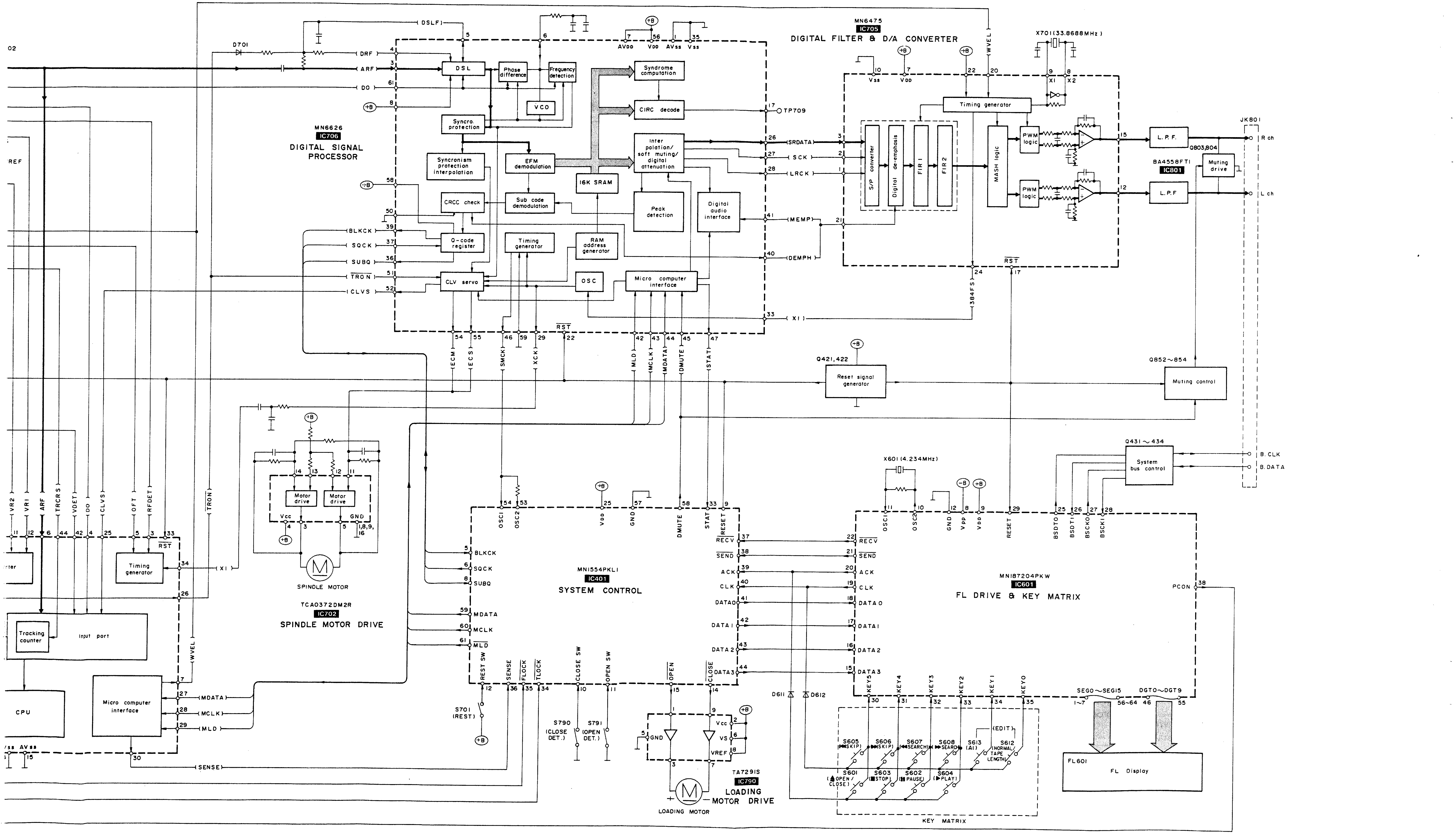

GND
TP1
(POWER)
Short : power "on"
To ST-CH7/SU-CH7
IC401
IC801
JK801
0621A-3

■ WIRING CONNECTION DIAGRAM


E POWER TRANSFORMER P.C.B.
T11 (Power transformer)
CN11
9 ······ 1
A SERVO P.C.B.
CS702
23
22
2
1
CS701
2
1
16
15
1 ········ 16
OPTICAL PICKUP
CP703
4···1
CP702
2 1
To ST-CH7 /SU-CH7
CP11
9 ······ 1
D MAIN P.C.B.
CN301
23
22
2
1
CN302
1
6
CN601
2 ····· 20
1 ····· 19
SPINDLE MOTOR
1 2
RED
WHT
WHT
BLK
1
2
3
4
TRAVERSE MOTOR
1 2
S701 REST SWITCH
WHT
WHT
1
2
C MOTOR/SWITCH P.C.B.
CP790
1
6
WHT
BLK
B OPERATION P.C.B.
CP601
2 ····· 20
1 ····· 19

■ BLOCK DIAGRAM


OPTICAL PICKUP
PinD
LD
Laser
Photo D.
RF amp
A1
A2
A3
A4
Tracking coil
Focus coil
TD−
TD+
FD−
FD+
Q701
Laser control
AN8800SCE2
IC701
SERVO AMP
APC
RF EQ
AGC
BDO
RF detector
VCPS
PD
LPF
I-V
VREF Best eye adj.
VR701
TP702
TP703
VREF
Vcc
Reset signal generator
Coil drive
Motor drive
TD1
FD1
TVD1
TVD+
TVD−
PVcc Vcc
TRAVERSE MOTOR
AN8377N
IC703
FOCUS/TRACKING COIL DRIVE
JK801
POWER
AC IN
T11
Power transformer
D1~D3
D5
D12
Regulator
Q1,Q2
Q6,11
LM2940T5M
IC1
Q3,Q4,Q5
Q7
Switching
Q9
Q10
Q8
VP
To FL display
TBAL
TES
PLAY
FE
TE
VREF
VR2
VR1
ARF
TRCRS
VDET
DO
CLVS
OFT
RFDET
TRON
WVEL
LDON
TRD
FOD
TVD
TRV
KICK
PWM
Output port
A/D converter
Timing generator
RST
X1
Tracking counter
Input port
CPU
Micro computer interface
MDATA
MCLK
MLD
SENSE
FLOCK
TLOCK
AVDD VDD Vss AVss
MN6650
IC704
SERVO PROCESSOR
D701
DSLF
DRF
ARF
DO
BLKCK
SQCK
SUBQ
TRON
CLVS
MN6626
IC706
DIGITAL SIGNAL PROCESSOR
DSL
Phase difference
Frequency detection
VCO
Syncro. protection
Syncronism protection interpolation
EFM demodulation
16K SRAM
Syndrome computation
CIRC decode
Inter polation/ soft muting/ digital attenuation
Peak detection
Digital audio interface
CRCC check
Sub code demodulation
Q-code register
Timing generator
RAM address generator
CLV servo
OSC
Micro computer interface
AVDD VDD AVss Vss
ECM
ECS
SMCK
XCK
MLD
MCLK
MDATA
DMUTE
STAT
Motor drive
Vcc
GND
SPINDLE MOTOR
TCA0372DM2R
IC702
SPINDLE MOTOR DRIVE
OSC1
OSC2
VDD
GND
DMUTE
STAT
RESET
MN1554PKL1
IC401
SYSTEM CONTROL
BLKCK
SQCK
SUBQ
MDATA
MCLK
MLD
REST SW
SENSE
FLOCK
TLOCK
CLOSE SW
OPEN SW
OPEN
CLOSE
S701 (REST)
S790 (CLOSE DET.)
S791 (OPEN DET.)
GND
Vcc
VREF
LOADING MOTOR

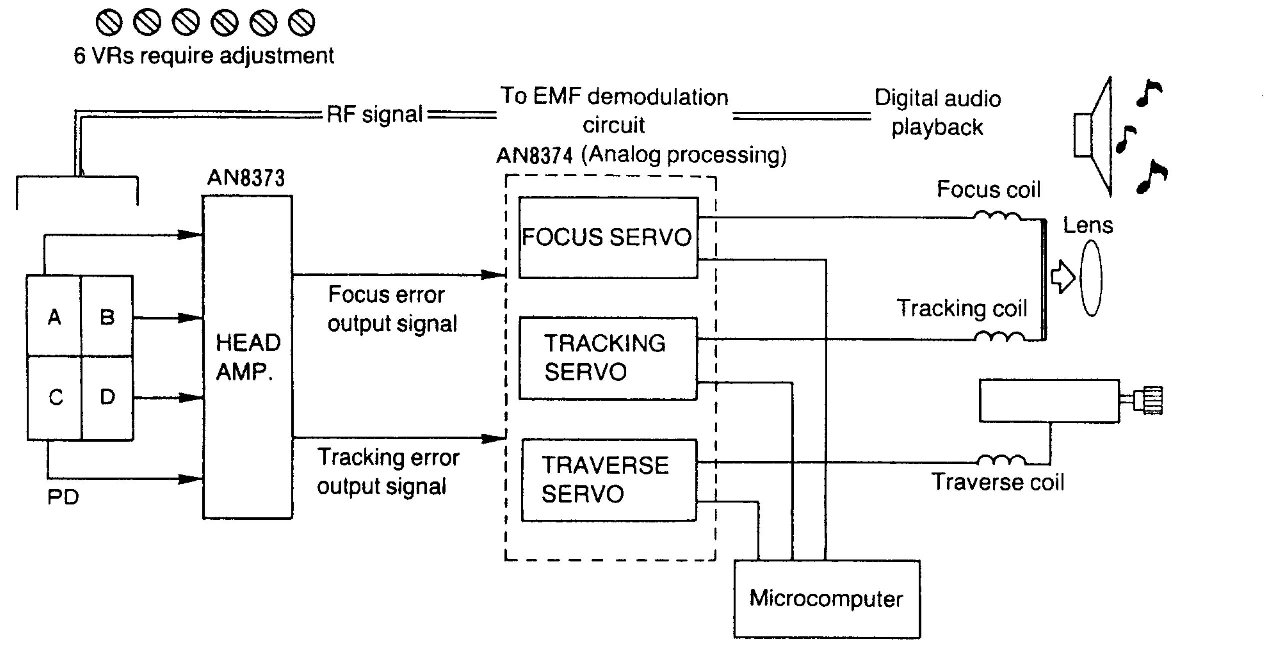

MN6626
IC706
DIGITAL SIGNAL PROCESSOR
DSL
Phase difference
Frequency detection
VCO
Syncro. protection
Syndrome computation
CIRC decode
Inter polation/ soft muting/ digital attenuation
EFM demodulation
Syncronism protection interpolation
16K SRAM
CRCC check
Sub code demodulation
Peak detection
Digital audio interface
Q-code register
Timing generator
RAM address generator
CLV servo
OSC
Micro computer interface
DSLF
DRF
ARF
DO
BLKCK
SQCK
SUBQ
TRON
CLVS
SRDATA
SCK
LRCK
MEMP
DEMPH
XI
TP709
D701
AVDD
VDD
AVSS
VSS
ECM
ECS
SMCK
XCK
RST
MLD
MCLK
MDATA
DMUTE
STAT
MN6475
IC705
DIGITAL FILTER & D/A CONVERTER
WVEL
X701(33.8688MHz)
Timing generator
S/P converter
Digital de-emphasis
FIR 1
FIR 2
MASH logic
PWM logic
L.P.F.
384FS
JK801
R ch
L ch
Q803,804
BA4558FTI
IC801
Muting drive
Q421,422
Reset signal generator
Q852~854
Muting control
Q431~434
System bus control
B.CLK
B.DATA
TCA0372DM2R
IC702
SPINDLE MOTOR DRIVE
Motor drive
Vcc
GND
SPINDLE MOTOR
MN1554PKL1
IC401
SYSTEM CONTROL
OSC1
OSC2
VDD
GND
DMUTE
STAT
RESET
RECV
SEND
ACK
CLK
DATA0
DATA1
DATA2
DATA3
BLKCK
SQCK
SUBQ
MDATA
MCLK
MLD
REST SW
SENSE
FLOCK
TLOCK
CLOSE SW
OPEN SW
OPEN
CLOSE
S701 (REST)
S790 (CLOSE DET.)
S791 (OPEN DET.)
TA7291S
IC790
LOADING MOTOR DRIVE
LOADING MOTOR
VS
VREF
X601(4.234MHz)
MN187204PKW
IC601
FL DRIVE & KEY MATRIX
VPP
BSDTO
BSDTI
BSCKO
BSCKI
PCON
KEY5
KEY4
KEY3
KEY2
KEY1
KEY0
SEG0~SEG15
DGT0~DGT9
D611
D612
S605 (◄◄SKIP)
S606 (►►SKIP)
S607 (◄◄SEARCH)
S608 (►►SEARCH)
S613 (AI)
S612 (NORMAL/TAPE LENGTH)
(EDIT)
S601 (▲OPEN/CLOSE)
S603 (■STOP)
S602 (II PAUSE)
S604 (►PLAY)
KEY MATRIX
FL601
FL Display
VR2
VR1
ARF
TRCRS
VDET
DO
CLVS
OFT
RFDET
TRON
Timing generator
Tracking counter
Input port
CPU
Micro computer interface
WVEL
MDATA
MCLK
MLD
SENSE
REF
AVSS

■ DIGITAL SERVO SYSTEM

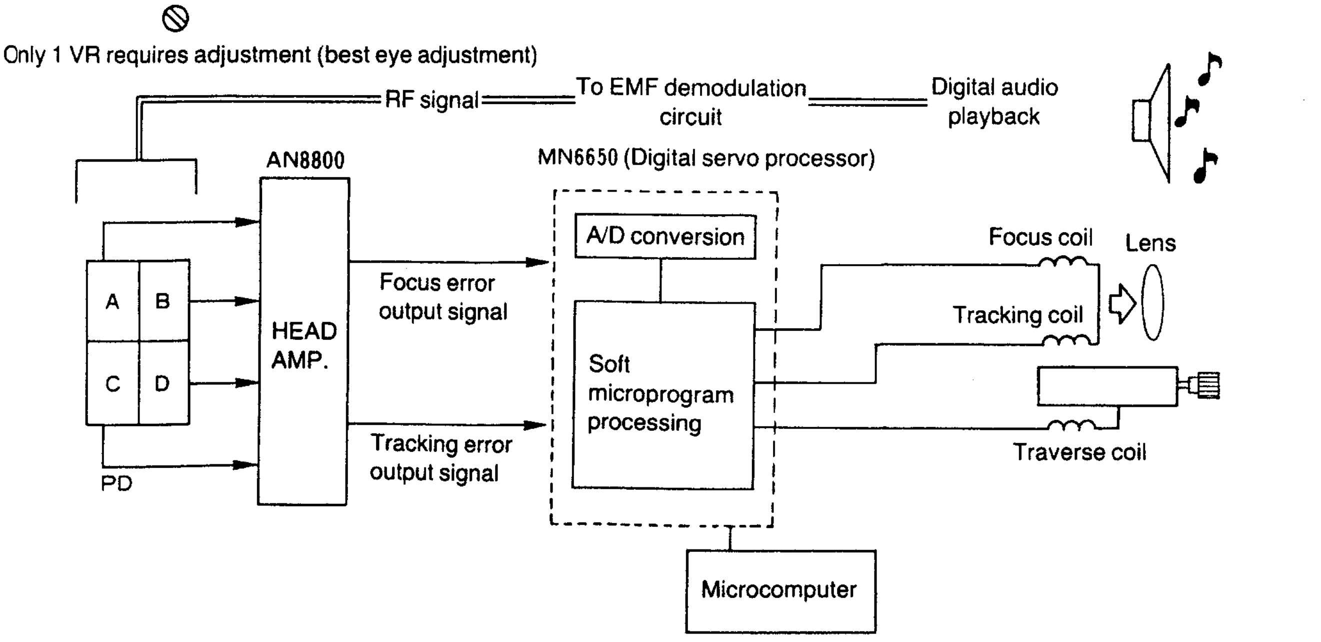
The newly-developed digital servo system is adopted in the servo circuit of the unit's CD player instead of the ordinary analog servo system.

1. The diagrams shown below represent differences between the analog servo and digital servo systems. The HEAD AMP. output signals (i.e., focus error and tracksing error output signals) are analog. These analog signals are converted to the 8-bit digital signals through the MN6650. The MN6650 performs the following adjustments automatically; focus offset, tracking offset, focus gain, tracking gain, and tracking balance adjustments. The outputs from the MN6650 such as the focus coil driving signal, tracking coil driving signal, and traverse motor driving signal are converted to analog signals again and sent to the coils and motor to perform proper servo control for a disc.

ANALOG SERVO SYSTEM


6 VRs require adjustment
RF signal
To EMF demodulation circuit
Digital audio playback
AN8374 (Analog processing)
AN8373
Focus coil
Lens
FOCUS SERVO
Focus error output signal
A
B
C
D
HEAD AMP.
Tracking coil
TRACKING SERVO
Tracking error output signal
TRAVERSE SERVO
Traverse coil
PD
Microcomputer

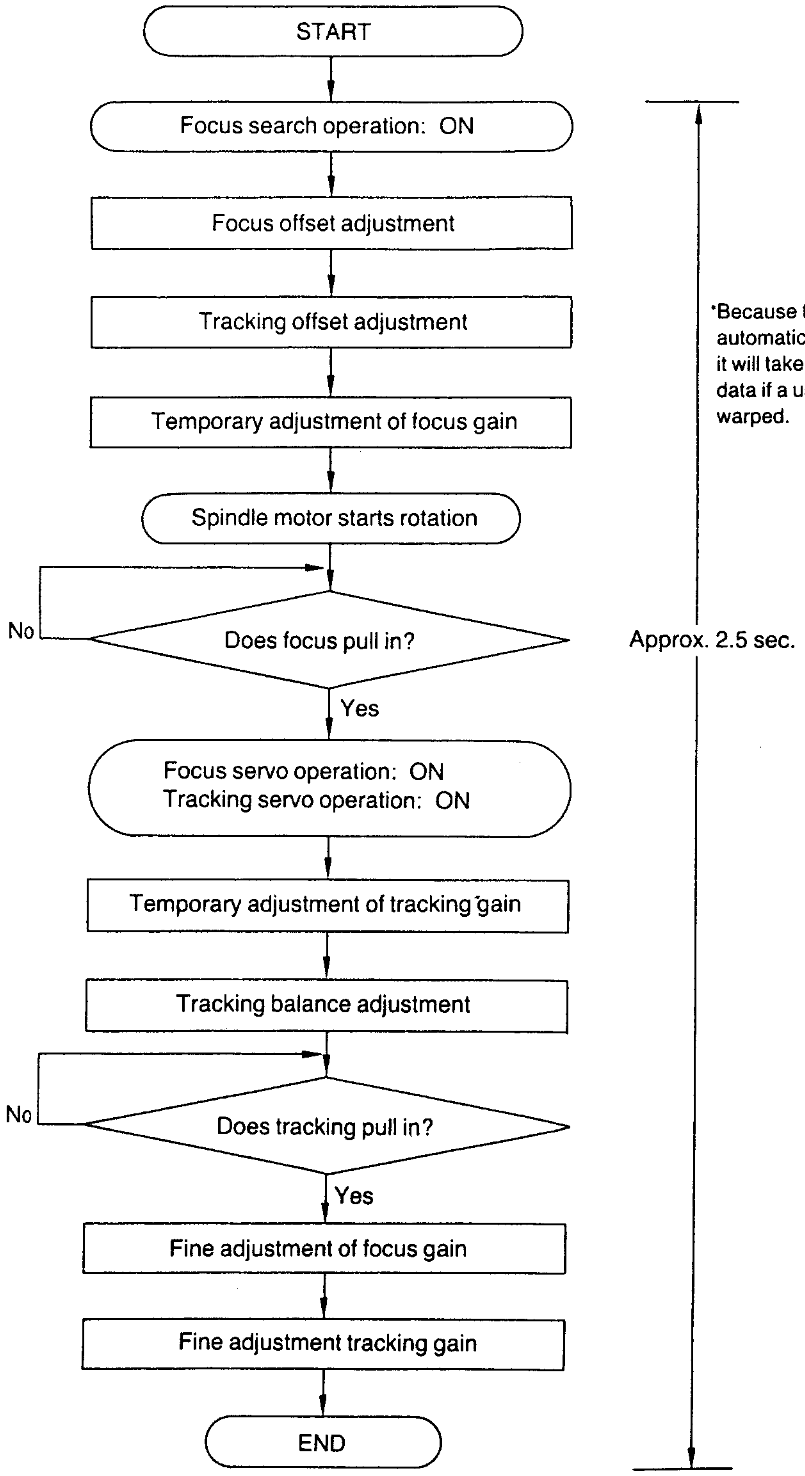
DIGITAL SERVO SYSTEM


Only 1 VR requires adjustment (best eye adjustment)
RF signal
To EMF demodulation circuit
Digital audio playback
AN8800
MN6650 (Digital servo processor)
A/D conversion
Focus coil
Lens
Focus error output signal
A
B
C
D
HEAD AMP.
Tracking coil
Soft microprogram processing
Traverse coil
Tracking error output signal
PD
Microcomputer

2. The servo processor IC MN6650 of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted in the conventional analog servo circuit:
(1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain, and (5) Tracking balance. Therefore, you do not have to perform not the above-mentioned electrical adjustments manually. Only the best eye (PD balance) needs to be adjusted adjustment. You can obtain an optimum servo control for a disc to be played.
[You must perform the best eye (PD balance) adjustment manually.]

The following flow chart shows the sequence of automatic adjustments.

•Flow chart on automatic adjustment sequence


START
Focus search operation: ON
Focus offset adjustment
Tracking offset adjustment
Temporary adjustment of focus gain
Spindle motor starts rotation
No
Does focus pull in?
Yes
Focus servo operation: ON
Tracking servo operation: ON
Temporary adjustment of tracking gain
Tracking balance adjustment
No
Does tracking pull in?
Yes
Fine adjustment of focus gain
Fine adjustment tracking gain
END
Approx. 2.5 sec.

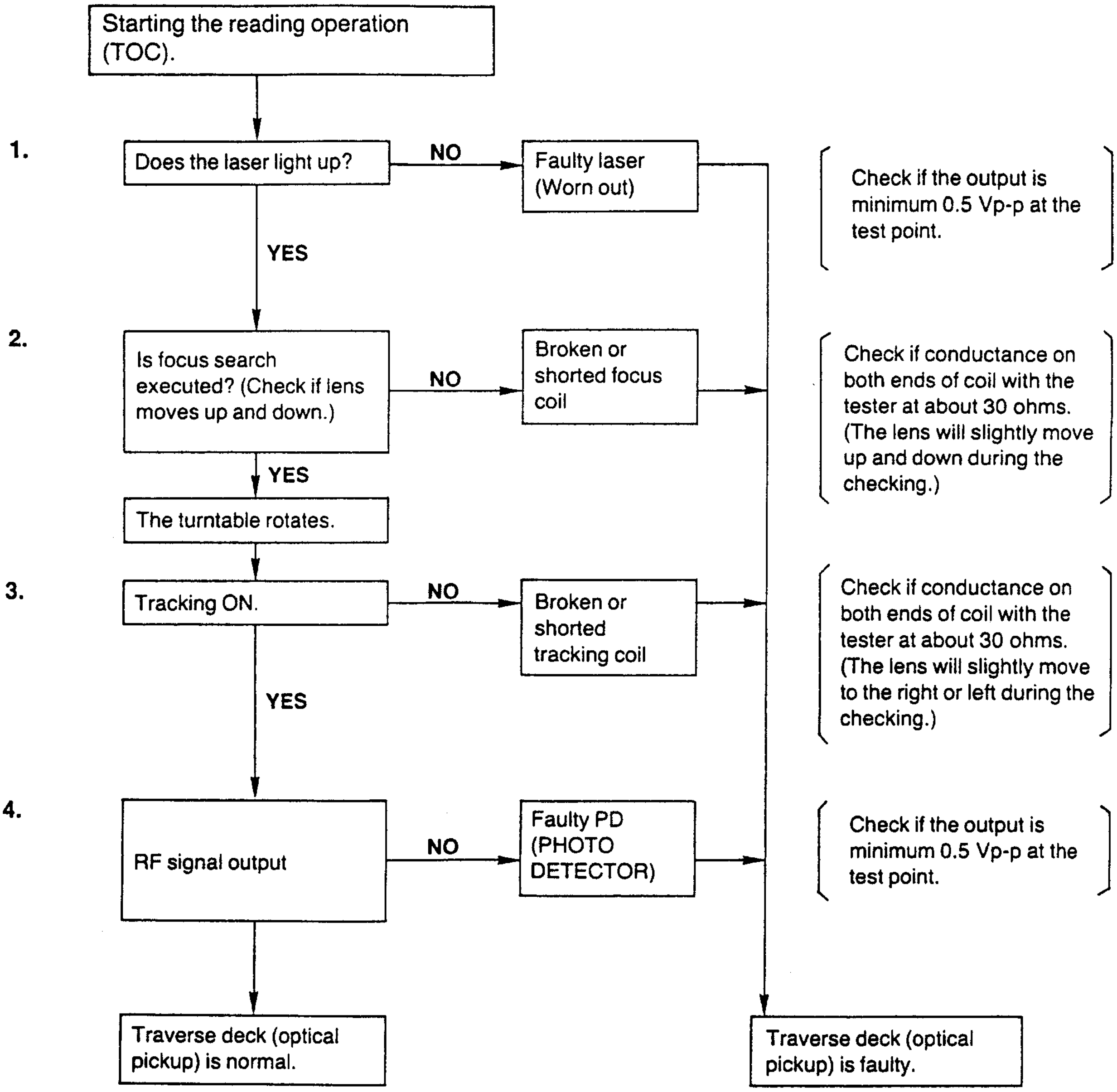
•Because the microcomputer precisely performs automatic adjustments as shown in the flow chart, it will take approx. 5 seconds to finish reading TOC data if a used disc is eccentric one or its surface is warped.

<CD SECTION>

■ CHECKING THE OPERATION PROBLEMS ON THE TRAVERSE DECK (OPTICAL PICKUP)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it. Replace the traverse deck only after the problem is identified.

(Procedure No.) **(Checking Points)** **(Cause)** **(Testing Procedure)**


Starting the reading operation (TOC).
1.
Does the laser light up?
NO
Faulty laser (Worn out)
Check if the output is minimum 0.5 Vp-p at the test point.
YES
2.
Is focus search executed? (Check if lens moves up and down.)
NO
Broken or shorted focus coil
Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move up and down during the checking.)
YES
The turntable rotates.
3.
Tracking ON.
NO
Broken or shorted tracking coil
Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move to the right or left during the checking.)
YES
4.
RF signal output
NO
Faulty PD (PHOTO DETECTOR)
Check if the output is minimum 0.5 Vp-p at the test point.
Traverse deck (optical pickup) is normal.
Traverse deck (optical pickup) is faulty.

※Replace traverse deck.

- Check electrical circuit.
- CD is not adjusted properly. Adjust CD again.
  - (1) Mechanical adjustment.
  - (2) Focus balance adjustment (PD balance)

  } Refer to page 26
- Check for flaws on disc or if it is warped or not centered.

※Checking Operations of Replaced Traverse Deck (New Traverse Deck)

a) Check the operations described below on the traverse deck after replacing it.

∗Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

∗Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

∗Checking Using Defect Disc.

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

b) If the operations are normal, CD adjustment are not required when the traverse deck is replaced.

Note: CD adjustments are required in the cases below. (Mechanical adjustments are not necessary.)
(See item 1–3 on page 26.)

- If audio is not played back continuously or noises occur after step (a) is excuted.
- If the adjustment VRs (VR701) were rotated before the traverse deck was replaced.
- If the ICs in the servo circuit or adjustment VRs were replaced.

■ MEASUREMENTS AND ADJUSTMENTS

Caution:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
With the unit turned "on", laser radiation is emitted from the pickup lens.
Avoid exposure to the laser beam, especially when performing adjustments.

This CD player is powered by the amplifier (SU-CH7). To adjust it or check operations as a separate unit, follow the steps below.

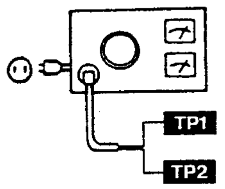
1. Apply a power supply voltage of AC 23 V to TP1 and TP2.

2. Short-circuit TP1 (POWER) and Chassis (GND). (POWER supply switch: ON.)

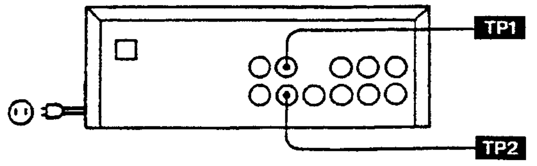
HOW TO CONNECT

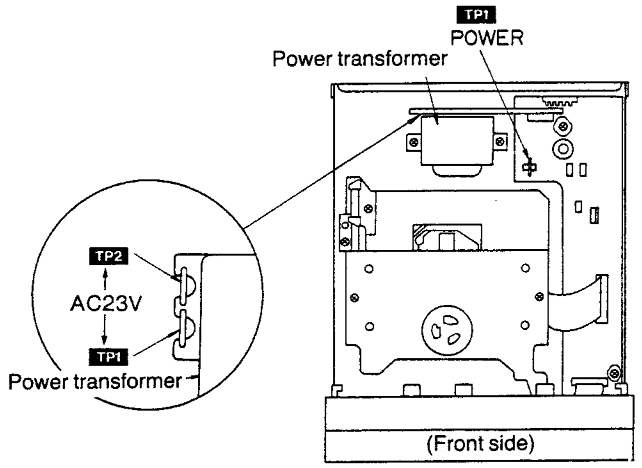
Note:
Apply a power supply voltage of AC 20 V to TP1 and TP2 by using a Voltage Controller. If it is not available, use a Power Supply Fixture (Continental Europe: SZZA1062C, Great Britain: SZZA1063C) instead.

Voltage controller



Power Supply Fixture





ADJUSTMENT POINT

- Please refer to Circuit Board Diagram for test point location

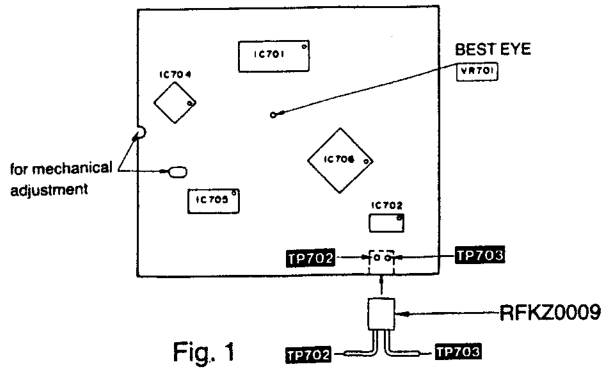


Fig. 1

Mechanical adjustment screw

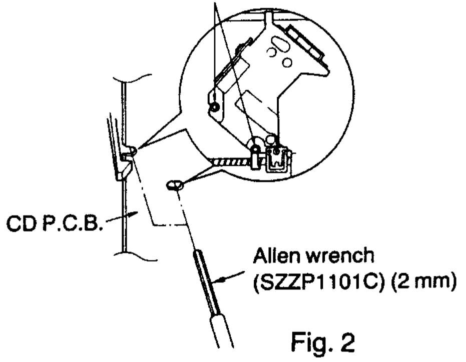


Fig. 2

Caution:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
With the unit turned "on", laser radiation is emitted from the pickup lens.
Avoid exposure to the laser beam, especially when performing adjustments.

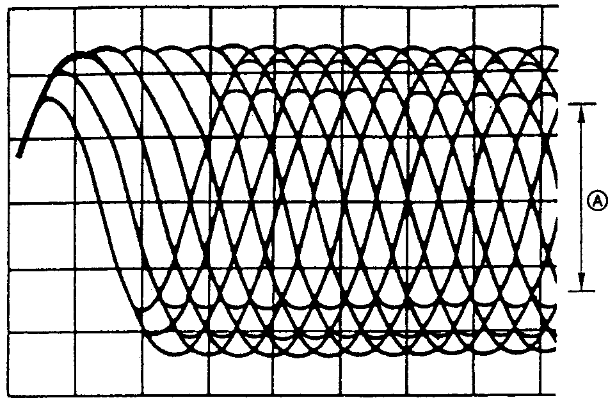
Measuring Instruments and Special Tools

- Test disc
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
- Allen wrench (M2.0) (SZZP1101C)
- Oscilloscope

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability when the traverse deck has not been replaced. Make the electrical adjustments first.

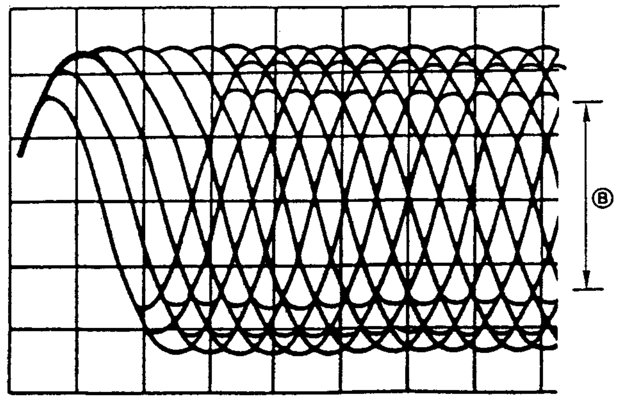
1. Connect the oscilloscope's CH. 1 probe across TP702 (+) and TP703 (V-REF) on the Servo P.C.B.
   Oscilloscope setting:
   VOLT .... 200 mV
   SWEEP .... 0.5 μsec
   Input coupling .... AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench (SZZP1101C) until the RF signal amplitude variation on the oscilloscope is minimized. (Shown in Fig. 2)
5. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZOL01).



Ⓐ Minimize the variation of amplitude.

(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across TP702 (+) and TP703 (V-REF) on the Servo P.C.B.
   Oscilloscope setting:
   VOLT .... 200 mV
   SWEEP .... 0.5 μsec
   Input coupling .... AC
2. Switch the player power **ON**, and play the 1 kHz (track 1) on test disc (SZZP1054C).
3. **Adjust VR701 until the RF signal eye pattern amplitude is maximized.**



Ⓑ Maximize the amplitude

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

·Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

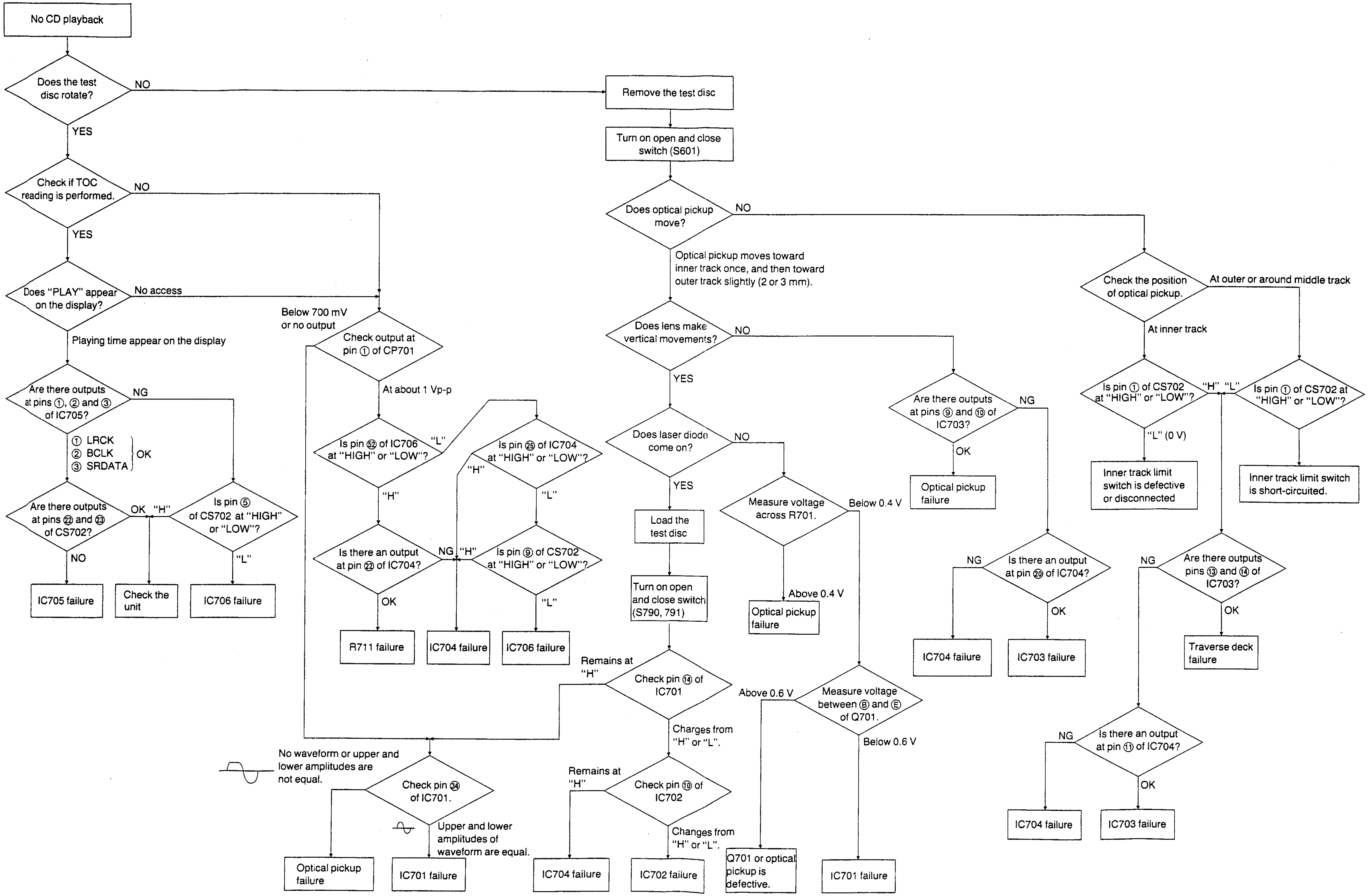
·Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

·Checking Playability

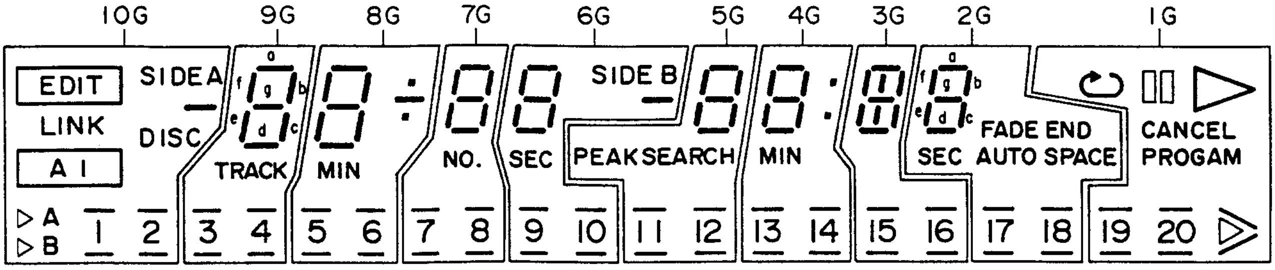
1. Play the 0.7 mm black dot and the 0.7 mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

■ TROUBLESHOOTING GUIDE


No CD playback
Does the test disc rotate?
NO
YES
Remove the test disc
Turn on open and close switch (S601)
Check if TOC reading is performed.
NO
YES
Does "PLAY" appear on the display?
No access
Playing time appear on the display
Below 700 mV or no output
Check output at pin ① of CP701
At about 1 Vp-p
Are there outputs at pins ①, ② and ③ of IC705?
NG
① LRCK
② BCLK
③ SRDATA
OK
Are there outputs at pins ㉒ and ㉓ of CS702?
OK
"H"
Is pin ⑤ of CS702 at "HIGH" or "LOW"?
"L"
NO
IC705 failure
Check the unit
IC706 failure
Is pin 52 of IC706 at "HIGH" or "LOW"?
"L"
"H"
Is pin ㉖ of IC704 at "HIGH" or "LOW"?
"H"
"L"
Is there an output at pin ㉒ of IC704?
NG
"H"
Is pin ⑨ of CS702 at "HIGH" or "LOW"?
"L"
OK
R711 failure
IC704 failure
IC706 failure
No waveform or upper and lower amplitudes are not equal.
Check pin ㉞ of IC701.
Upper and lower amplitudes of waveform are equal.
Optical pickup failure
IC701 failure
Does optical pickup move?
NO
Optical pickup moves toward inner track once, and then toward outer track slightly (2 or 3 mm).
Does lens make vertical movements?
NO
YES
Does laser diode come on?
NO
YES
Load the test disc
Turn on open and close switch (S790, 791)
Remains at "H"
Check pin ⑭ of IC701
Charges from "H" or "L".
Remains at "H"
Check pin ⑩ of IC702
Changes from "H" or "L".
IC704 failure
IC702 failure
Measure voltage across R701.
Below 0.4 V
Above 0.4 V
Optical pickup failure
Measure voltage between Ⓑ and Ⓔ of Q701.
Above 0.6 V
Below 0.6 V
Q701 or optical pickup is defective.
IC701 failure
Are there outputs at pins ⑨ and ⑩ of IC703?
NG
OK
Optical pickup failure
Is there an output at pin ⑳ of IC704?
NG
OK
IC704 failure
IC703 failure
Check the position of optical pickup.
At outer or around middle track
At inner track
Is pin ① of CS702 at "HIGH" or "LOW"?
"H"
"L"
"L" (0 V)
Is pin ① of CS702 at "HIGH" or "LOW"?
Inner track limit switch is defective or disconnected
Inner track limit switch is short-circuited.
Are there outputs pins ⑬ and ⑭ of IC703?
NG
OK
Traverse deck failure
Is there an output at pin ⑪ of IC704?
NG
OK
IC704 failure
IC703 failure

■ DESCRIPTION OF FL PANEL

•Grid assianment


10G
9G
8G
7G
6G
5G
4G
3G
2G
1G
EDIT
LINK
A I
SIDE A
DISC
TRACK
MIN
NO.
SEC
SIDE B
PEAK SEARCH
MIN
SEC
FADE END
AUTO SPACE
CANCEL
PROGAM
▷A
▷B
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

•Pin connection

Pin No.	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Connection	F2	F2	NP	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	P16	P15	P14	P13	P12	P8	P9	P10	P11	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

Pin No.	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Connection	P5	P6	P7	P4	P3	P2	P1	NP	NP	NP	NP	NP	NP	NP	F1	F1

•Anode connection

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	▷ (A)	a	a	a	a	a	a	a	a	▷
P2	▷ (B)	b	b	b	b	b	b	b	b	▯▯
P3	LINK	c	c	c	c	c	c	c	c	↻
P4	DISC	d	d	d	d	d	d	d	d	╲
P5	AI	e	e	e	e	e	e	e	e	▷
P6	EDIT	f	f	f	f	f	f	f	f	╱
P7	–	g	g	g	g	g	g	g	g	CANCEL
P8	–	TRACK	MIN	NO.	SEC	SEARCH	MIN	¦	SEC	–
P9	—	–	—	–	—	PEAK	–	–	FADE END	–
P10	SIDE A	–	:	–	SIDE B	–	:	–	AUTO SPACE	PROGRAM
P11	$\overline{(1)}$	$\overline{(3)}$	$\overline{(5)}$	$\overline{(7)}$	$\overline{(9)}$	$\overline{(11)}$	$\overline{(13)}$	$\overline{(15)}$	$\overline{(17)}$	$\overline{(19)}$
P12	1	3	5	7	9	11	13	15	17	19
P13	$\underline{(1)}$	$\underline{(3)}$	$\underline{(5)}$	$\underline{(7)}$	$\underline{(9)}$	$\underline{(11)}$	$\underline{(13)}$	$\underline{(15)}$	$\underline{(17)}$	$\underline{(19)}$
P14	$\overline{(2)}$	$\overline{(4)}$	$\overline{(6)}$	$\overline{(8)}$	$\overline{(10)}$	$\overline{(12)}$	$\overline{(14)}$	$\overline{(16)}$	$\overline{(18)}$	$\overline{(20)}$
P15	2	4	6	8	10	12	14	16	18	20
P16	$\underline{(2)}$	$\underline{(4)}$	$\underline{(6)}$	$\underline{(8)}$	$\underline{(10)}$	$\underline{(12)}$	$\underline{(14)}$	$\underline{(16)}$	$\underline{(18)}$	$\underline{(20)}$

■ FUNCTIONS OF IC TERMINALS

•IC401 (MN1554PKL1)

Pin No.	Mark	I/O Division	Function
1	MUTE RELAY	—	(Not used, open)
2	$\overline{\mathrm{PLUNGER}}$	—	(Not used, open)
3	$\overline{\mathrm{SYNC}}$	—	(Not used, open)
4	$\overline{\mathrm{SIRQ}}$	I	(Not used, connected to power supply)
5	BLKCK	I	Sub-code block clock signal (f BLKCK=75 Hz)
6	SQCK	O	External clock for sub-code Q resister
7	SBO	—	(Not used, open)
8	SUB Q	I	Sub-code Q code input
9	RESET	I	Reset input
10	CLOSE SW	I	Disc holder "close" detection
11	OPEN SW	I	Disc holder "open" detection
12	REST SW	I	Reset switch signal input
13	NC	—	Not connected
14	$\overline{\mathrm{CLOSE}}$	O	Loading motor "close" command
15	$\overline{\mathrm{OPEN}}$	O	Loading motor "open" command
16 ~ 24	NC	—	Not connected (Pin 17 is connected to GND)
25	V_{DD}	I	Power supply
26 ~ 30	NC	—	Not connected (Pin 29, 30 is connected to GND)
31	FUTA SW	—	(Not used, connected to resistance)
32	MODE	—	(Not used, connected to GND)
33	STAT	I	Status signal (CRC, CVE, CLVS, $\overline{\mathrm{TT}}$STOP, FCLV, SQOK)
34	$\overline{\mathrm{TLOCK}}$	I	Tracking servo pull-in signal (L: pull-in)
35	$\overline{\mathrm{FLOCK}}$	I	Focas servo pull-in signal (L: pull-in)
36	SENSE	I	Sense signal
37	$\overline{\mathrm{RECV}}$	I	External data receipt command signal
38	$\overline{\mathrm{SEND}}$	I	External data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 ~ 44	DATA 0 ~ DATA 3	O	Key scan signal
45 ~ 52	NC	—	Not connected
53	OSC 2	I	Clock terminal (4.2336 MHz)
54	OSC 1		
55	X1	—	(Not sued, open)
56	X0	—	(Not used, open)
57	GND	—	GND
58	DMUTE	O	Muting output (Hi mute)
59	MDATA	O	Micro computer command data output
60	MCLK	O	Micro computer command clock signal output
61	$\overline{\mathrm{MLD}}$	O	Micro computer command load signal output
62	D. OUT	—	(Not used, open)
63	EMPH	—	(Not used, open)
64	SERVO RST	—	Not connected

•IC601 (MN187204PKW)

Pin No.	Mark	I/O Division	Function
1 ~ 7	SEG 6 ~ SEG 0	O	FL segment signal output
8	VPP	I	FL motor power supply
9	VDD	I	Power supply
10	OSC 2	I	Clock terminal (4.2336 MHz)
11	OSC 1		
12	GND	—	GND
13 • 14	NC	—	Not connected
15 ~ 18	DATA 3 ~ DATA 0	O	Key scan data output
19	CLK	O	Data lock signal
20	ACK	O	Data discrimination signal
21	/SEND	O	External data transmission command signal
22	/RECV	O	External data receipt command signal
23 • 24	NC	—	Not connected
25	BSDT O	O	System data control
26	BSDT I	I	
27	BSCK O	O	System clock control
28	BSCK I	I	
29	RESET	I	Reset input
30 ~ 35	KEY 5 ~ KEY 0	I	Key scan data input
36	NC	—	Not connected
37	CM	—	GND
38	PCON	O	Servo circuit power switch
39 ~ 45	NC	—	Not connected
46 ~ 55	DGT 0 ~ DGT 9	O	FL digit signal output
56 ~ 64	SEG 15 ~ SEG 7	O	FL segment signal output

•IC701 (AN8800SC-E2)

Pin No.	Mark	I/O Division	Function
1	LDG	I	Loop gain switch for auto pwer control VCC: NORMAL OPEN: +20 dB This machine for "NORMAL"
2	LDP	I	Monitor PD polequality switch for auto power control OPEN: P sub PD GND: N sub PD This machine for "P sub PD"
3	LD	O	Laser diode control output
4	LPD	I	Laser diode power monitor PD signal input
5	GND	—	Analog GND
6	LDON	I	Laser diode auto power control H: ON L: OFF
7	AMPI	I	Reverse amplifier input
8	AMPO	O	Reverse amplifier input
9	RFIN	I	RF AGC input (H: light level)
10	RFEQ	—	GND
11	C.AGC	—	Condenser connection for RF AGC loop filter
12	ARF	O	RF output after AGC (H: light level)
13	C.SBDO	—	Low level detected wave condenser connection for dark level drop-out detection
14	/RFDET	O	RF detection output
15	BDO	O	Black dropout detection output
16	VCC	—	Power supply (+5 V)
17	SDO	O	System dropout dection output
18	VAD+	O	Plus power supply for A/D converter
19	VREF	O	Reference voltage of servo error signal
20	VAD−	O	Power supply for A/D converter
21	OFTR	O	Off track detction output
22	PLAY	I	"Play" signal input (H: ON, L: OFF)
23	WVEL	I	High speed input (H: high speed L: normal)
24	TES	I	Tracking error shunt signal input (H: shunt L: output)
25	PTO	O	Traverse speed detection signal output
26	PTI	I	Traverse speed detection signal input
27	PBO	O	Potention buffer output
28	PBI	I	Potention buffer input
29	CROSS	O	Tracking error cross detection output
30	TE	O	Tracking error output
31	TEBPF	I	Tremble detection output
32	TBAL	I	Tracking balance adjustment
33	VDET	O	Viblation detection output
34	FE	O	Focus error output
35	FBL2	—	Focus balance adjustment 2
36	FBL1	—	Focus balance adjustment 1
37	VCC	—	Power supply (+5 V)
38	GND	—	GND
39	PDBD	I	Photo detector current input
40	PDA	I	Photo detector current input
41	PDAD	I	Photo detector current input
42	PDB	I	Photo detector current input

•IC702 (TCA0372DM2R)

Pin No.	Mark	I/O Division	Function
1	GND	—	Connected to P.GND
2	NC	—	———
3	VOUT1	O	Spindle motor drive signal output
4	VCC	I	Power supply (+7.5 V)
5	VOUT2	O	Spindle motor drive signal output
6	NC	—	Connected to P.GND
7	NC	—	Connected to P.GND
8	GND	—	Connected to P.GND
9	GND	—	Connected to P.GND
10	NC	—	Connected to P.GND
11	−VIN2	I	Spindle motor drive signal input
12	+VIN2	I	Spindle motor drive signal input
13	+VIN1	I	Spindle motor drive signal input
14	−VIN1	I	Spindle motor drive signal input
15	NC	—	Connected to P.GND
16	GND	—	Connected to P.GND

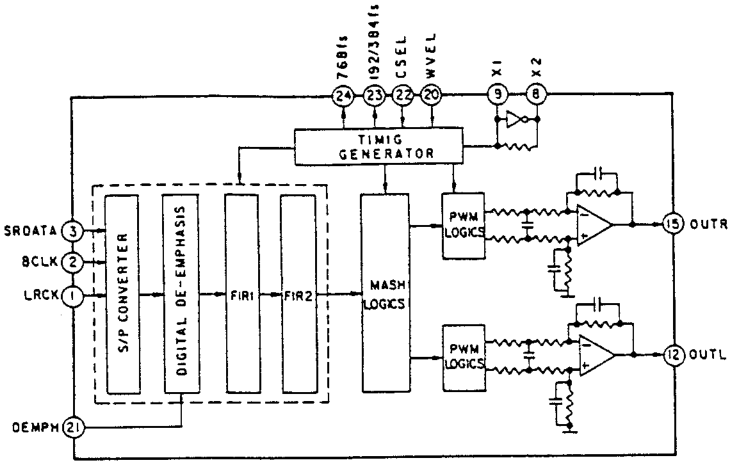
•IC703 (AN8377N)

Pin No.	Mark	I/O Division	Function
1	PVCC	I	Driver power supply (+5 V)
2	VCC	I	Power supply (+5 V)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage (+5 V) output
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input
9	TD−	O	Inverting output of tracking driver
10	TD+	O	Non-inverting output of tracking driver
11	FD−	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD−	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	RESET	O	Reset signal output
16	PC	I	PC input

•IC704 (MN6650)

Pin No.	Mark	I/O Division	Function
1	TES	O	Tracking error shunt signal (H: Shunt)
2	PLAY	O	"Play" signal (H: play)
3	/RFDET	I	RF detection signal (L: detection)
4	DO	I	Dropout signal (H: dropout)
5	OFT	I	Off track signal (H: off track)
6	ARF	I	RF signal input
7	WVEL	O	High speed status signal (H: high speed)
8	PBO	I	Potension buffer signal input (Analog input)
9	TE	I	Tracking error signal input (Analog input)
10	FE	I	Focus error signal input (Analog input)
11	VR2	I	Reference voltage for A/D (Low reverse)
12	VR1	I	Reference voltage for A/D (High reverse)
13	LDON	O	Laser "ON" signal (H: ON)
14	VSS	I	Power supply (Digital system OV)
15	AVSS	I	Power supply (Analog system OV)
16	AVDD	I	Power supply (Analog system +5 V)
17	VDD	I	Power supply (Digital system +5 V)
18	TRV	O	Traverse force transmission output
19	TVD	O	Traverse drive output
20	FOD	O	Focus drive output
21	TRD	O	Tracking drive output
22	KICK	O	Kick pulse output
23	/TEST	I	Test terminal ("L", normal)
24	VSS	I	Power supply (Digital system OV)
25	CLVS	I	Spindle servo condition signal (H: CLV L: Rough servo)
26	/TRON	O	Tracking servo "ON" signal (L: ON)
27	MDATA	I	Micro computer command data input
28	MCLK	I	Micro computer command clock signal input
29	MLD	I	Micro computer command load signal input (L: load)
30	SENSE	O	Sense signal input
31	/FLOCK	O	Focus servo pull-in signal (L: take-in condition)
32	/TLOCK	O	Tracking servo pull-in signal (L: take-in condition)
33	/RST	I	Reset input (L: reset)
34	XI	I	Clock input (fXI=16.9344 MHz)
35	T0	O	Test terminal ("Open", normal)
36	T1	O	Test terminal ("Open", normal)
37	T2	O	Test terminal ("Open", normal)
38	T3	O	Test terminal ("Open", normal)
39	T4	I	Test terminal ("L", normal)
40	T5	I	Test terminal ("L", normal)
41	T6	I	Test terminal ("L", normal)
42	VDET	I	Vibration detection signal input (H: detection)
43	TBAL	O	Tracking balance adjustment output
44	TRCRS	I	Track cross signal input

•IC705 (MN6475)


768fs
192/384fs
CSEL
WVEL
X1
X2
24
23
22
20
9
8
TIMIG GENERATOR
SRDATA 3
BCLK 2
LRCK 1
S/P CONVERTER
DIGITAL DE-EMPHASIS
FIR1
FIR2
MASH LOGICS
PWM LOGICS
PWM LOGICS
15 OUTR
12 OUTL
DEMPH 21

Pin No.	Mark	I/O Division	Function
1	LRCK	I	L.R detection signal
2	BCLK	I	Bit clock for SRDATA
3	SRDATA	I	Serial data input
4	COT1	—	Connected to D.GND
5	COT2	—	Connected to D.GND
6	TEST	—	Connected to D.GND
7	VDD	I	Digital system power supply (+5 V)
8	×2	—	Crystal oscillator connection
9	×1	—	Crystal oscillator connection
10	VSS	—	Connected to GND
11	AVDDL	I	Power supply (+5 V)
12	OUT.L	O	Lch output
13	AVSSL	—	Connected to A.GND
14	AVSSR	—	Connected to A.GND
15	OUT.R	O	Rch output
16	AVDDR	I	Power supply (+5 V)
17	/RST	I	Reset signal input (L: reset)
18	PWM	—	NC
19	CP	—	Connected to D.GND
20	WVEL	I	High speed status signal input (H: high speed)
21	DEMPH	I	De-emphasis ON signal (H: ON)
22	CSEL	I	Test terminal
23	192FS/ 384FS	—	NC
24	768FS	O	Clock output

Pin No.	Mark	I/O Division	Function
1	LRCK	I	L/R clock input
2	BCLK	I	Serial input bit clock input
3	SRDATA	I	Serial input date input
4	COT1	—	Test mode input terminal 1 (normal: L)
5	COT2	—	Test mode input terminal 2 (normal: L)
6	TEST	—	Test mode input terminal 3 (normal: L)
7	DVDD	I	Digital system power supply (+5 V)
8	×2	—	Crystal oscillator connection
9	×1	—	Crystal oscillator connection
10	DVSS	—	Digital system ground terminal
11	AVDDL	I	Analog system power supply 1 (+5 V)
12	OUTL	O	Analog output (Lch)
13	AVSSL	—	Analog system ground terminal 1
14	AVSSR	—	Analog system ground terminal 2
15	OUTR	O	Analog output (Rch)
16	AVDDR	I	Analog system power supply 2 (+5 V)
17	RSTB	I	Reset terminal (L: reset)
18	PWM	O	PWM output
19	TP	—	Test terminal (normal: L)
20	WVEL	I	Motion speed switch (H: high speed)
21	DEMPH	I	Digital de-emphasis ON/OFF terminal (H: ON)
22	CSEL	I	Output clock frequency selection terminal of CK192
23	CK192	O	Clock devided frequercy output
24	CK768	O	Clock output

●IC706 (MN6626)

Pin No.	Mark	I/O Division	Function
1	AVSS	I	GND for DSL, PLL circuit (OV)
2	IRFF	I	Reference electric current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias
5	DSLF	O	DSL loop filter
6	PLLF	—	PLL loop filter
7	AVDD	I	Power supply for DSL. PLL
8	RSEL	I	RF signal quality decision terminal
9 ~ 16	TBUS7 ~ TBUS0	O	Test terminal (normal: Open)
17	FLAG	O	Error/frag output
18	IPFLAG	O	Interpolation flag
19	FCLK	O	Crystal frame clock
20	BTTCK	O	Byte clock
21	WDCK	O	Ward clock
22	/RST	I	Reset input
23	TX	O	Digital audio interface output
24	LDG	O	Lch deglitch signal
25	RDG	O	Rch deglitch signal
26	SRDATA	O	Serial data signal
27	SCK	O	Bit clock for SRDATA
28	LRCK	O	L, R discrimination signal
29	XCK	O	Crystal oscillator clock output
30	PMCK	O	1/192 devided frequency clock signal of crystal oscillator
31	CSEL	I	Test terminal (normal: L)
32	PSEL	I	Test terminal (normal: L)
33	X1	—	Crystal oscillator circuit input
34	X2	—	Crystal oscillator circuit output
35	VSS	I	Power supply (OV)
36	SUBQ	O	Sub-code Q-code output
37	SQCK	I	External clock for sub-code Q resister
38	/CLDCK	O	Sub-code frame clock signal
39	BLKCK	O	Sub-code block clock signal
40	DEMPH	O	De-emphasis ON signal
41	MEMP	I	Emphasis signal input (For digital audio interface)
42	MLD	I	Micro computer command load signal input (L: load)
43	MCLK	I	Micro computer command clock signal input
44	MDATA	I	Micro computer command data input
45	DMUTE	I	Muting input
46	SMCK	O	MSEL=½ devided frequency clock signal of crystal oscillator when "H" level MSEL=¼ devided frequency clock signal of crystal oscillator when "L" level
47	STAT	O	Status signal
48	CRC	O	Sub-code CRC check result (H: OK, L: NG)
49	SUBC	O	Sub-code serial output data
50	SBCK	I	Clock input for sub-code serial output
51	/TRON	I	Tracking servo ON signal
52	CLVS	O	Spindle servo phase synchronization condition signal (H: CLV L: rough servo)
53	PC	O	Sprindle motor ON signal (L: ON)
54	ECM	O	Spindle motor drive signal (Force mode output)
55	ECS	O	Spindle motor drive signal (Servo error signal output)
56	VDD	I	Power supply (+5 V)
57	/TEST	I	Test terminal (normal: H)
58	SSEL	I	SUBQ terminal Output mode switch terminal (H: Q code buffer mode)
59	MSEL	I	SMCK terminal output frequency switch terminal
60	RESY	O	Resynchronization signal of frame synchronization (H: synchronization, L: not)
61	DO	I	Drop-out signal (H: drop-out)
62	EFM	O	EFM signal output
63	PCK	O	PLL extract clock output
64	PDO	—	Phase comparison signal of EFM signal and PCK signal

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* Warning: This product uses a laser diode. Refer to caution statements on page 2.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	LM2940T5	I. C, REGULATOR	
IC401	MN1554PKL1	I. C, SYSTEM CONTROL	
IC601	MN187204PKW	I. C, SYSTEM CONT. &FL DRIVE	
IC701	AN8800SCE2	I. C, SERVO AMP.	
IC702	TCA0372DM2R	I. C, SPINDLE MOTOR DRIVE	
IC703	AN8377N	I. C, TRAVERSE MOTOR DRIVE	
IC704	MN6650	I. C, DIGITAL SERVO PROCESSOR	
IC705	MN6475	I. C, DIGITAL FILTER	
IC706	MN6626	I. C, DIGITAL SIGNAL PRO.	
IC790	TA7291S	I. C, MOTOR DRIVE	
IC801	SVIBA4558F	I. C, L. P. FILTER AMP.	
		IC PROTECTOR(S)	
ICP12	SRUN20T	IC PROTECTOR	
		TRANSISTOR(S)	
Q1	DTA114ESTP	TRANSISTOR	
Q2	2SD1862QRTV6	TRANSISTOR	
Q3	2SA933SQR	TRANSISTOR	
Q4-6	2SD2037EFTA	TRANSISTOR	
Q7	DTC124EST	TRANSISTOR	
Q8	2SB1238QSTV6	TRANSISTOR	
Q9	2SC1740SQ	TRANSISTOR	
Q10	2SA933SQR	TRANSISTOR	
Q11	2SD2037EFTA	TRANSISTOR	
Q421, 422	2SC1740SQ	TRANSISTOR	
Q431	2SC1740SQ	TRANSISTOR	
Q432	DTC144EKT96	TRANSISTOR	
Q433	2SC1740SQ	TRANSISTOR	
Q434	DTC144EKT96	TRANSISTOR	
Q701	2SB709S	TRANSISTOR	
Q803, 804	2SD2144S	TRANSISTOR	
Q852	DTA124ESTP	TRANSISTOR	
Q853	DTC114ESTP	TRANSISTOR	
Q854	DTA114ESTP	TRANSISTOR	
		DIODE(S)	
D1-3	1SR35200TB	DIODE	⚠
D5	1SR35200TB	DIODE	⚠
D7	1SS254TA	DIODE	
D8	MA4056MTA	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D9	1SR35200TB	DIODE	
D10	MA4082LTA	DIODE	
D11	MA4270	DIODE	
D12	MA4056MTA	DIODE	
D13, 14	MA4068M	DIODE	
D401	MA4039HTA	DIODE	
D402	1SS254TA	DIODE	
D603, 604	MA4043M	DIODE	
D611, 612	1SS254TA	DIODE	
D701	MA110TW	DIODE	
D801, 802	1SS254TA	DIODE	
D852	1SS254TA	DIODE	
D854, 855	1SS254TA	DIODE	
		VARIABLE RESISTOR(S)	
VR701	EVNDXAA00B14	V. R, BEST EYE	
		COIL(S)	
L431, 432	RLQZP3R3KT-Y	COIL	
		OSCILLATOR(S)	
X601	EF0GC4234T4	OSCILLATOR	
X701	RSXZ33M8M01T	OSCILLATOR	
		DISPLAY	
FL601	RSL0080-F	DISPLAY	
		SWITCH(ES)	
S601	EVQ21405R	SW, OPEN/CLOSE	
S602	EVQ21405R	SW, PAUSE	
S603	EVQ21405R	SW, STOP	
S604	EVQ21405R	SW, PLAY	
S605	EVQ21405R	SW, SKIP (REV)	
S606	EVQ21405R	SW, SKIP (FWD)	
S607	EVQ21405R	SW, SEARCH (REV)	
S608	EVQ21405R	SW, SEARCH (FWD)	
S612	EVQ21405R	SW, NORMAL/TAPE LENGTH	
S613	EVQ21405R	SW, AI	
S701	SSHD5-E	SW, REST	
S790	RSH1A005	SW, LOADING CLOSE DETECT	
S791	RSH1A005	SW, LOADING OPEN DETECT	

Ref. No.	Part No.	Part Name & Description	Remarks
		CONNECTOR(S)	
CN11	RJU057W009	SOCKET(9P)	
CN301	RJS1A6823	SOCKET(23P)	
CN302	EMCS0660MT6	CONNECTOR(6P)	
CN601	RJS20Q11ZA	SOCKET(20P)	
CP11	RJT057W009-1	CONNECTOR(9P)	
CP601	RJS20Q11ZA	SOCKET(20P)	
CP701, 702	RJP2G17ZA	CONNECTOR(2P)	
CP703	RJP4G17ZA	CONNECTOR(4P)	
CS701	RJU035T016-1	SOCKET(16P)	
CS702	RJS1A6723-1Q	SOCKET(23P)	
CP790	RJP6G17ZA	PLUG(6P)	
JK801	RJT055K011	CONTROL TERMINAL	
		TRANSFORMER(S)	
T11	RTP1K4J021	POWER TRANSFORMER	⚠

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1	ERD2FCVJ6R8T	1/4W 6.8 ⚠
R2	ERDS2TJ473	1/4W 47K
R3	ERDS2TJ223	1/4W 22K
R4	ERDS2TJ102	1/4W 1K
R5	ERDS2TJ473	1/4W 47K
R6	ERDS2TJ472	1/4W 4.7K
R7	ERDS1FVJ271T	1/2W 270 ⚠
R8, 9	ERDS2TJ1R0	1/4W 1.0
R10	ERDS2TJ3R9T	1/4W 3.9
R11, 12	ERD2FCVG221T	1/4W 220 ⚠
R13	ERDS2TJ222	1/4W 2.2K
R14, 15	ERDS2TJ332	1/4W 3.3K
R16	ERDS2TJ102	1/4W 1K
R17	ERD2FCVJ6R8T	1/4W 6.8
R18, 19	ERDS2TJ1R0	1/4W 1.0
R20	ERD2FCVG220T	1/4W 22
R303	ERDS2TJ560T	1/4W 56
R304	ERDS2TJ102	1/4W 1K
R401-408	ERDS2TJ472	1/4W 4.7K
R419	ERDS2TJ472	1/4W 4.7K
R420	ERDS2TJ105T	1/4W 1M
R421	ERDS2TJ221	1/4W 220
R422-425	ERDS2TJ472	1/4W 4.7K
R426	ERDS2TJ102	1/4W 1K
R427	ERDS2TJ472	1/4W 4.7K

Ref. No.	Part No.	Values & Remarks
R432	ERDS2TJ470	1/4W 47
R433, 434	ERDS2TJ393	1/4W 39K
R435	ERDS2TJ223	1/4W 22K
R436	ERDS2TJ470	1/4W 47
R438	ERDS2TJ470	1/4W 47
R439, 440	ERDS2TJ393	1/4W 39K
R441	ERDS2TJ223	1/4W 22K
R442	ERDS2TJ470	1/4W 47
R443	ERDS2TJ100	1/4W 10
R451	ERDS2TJ103	1/4W 10K
R452, 453	ERDS2TJ102	1/4W 1K
R600-605	ERDS2TJ472	1/4W 4.7K
R606	ERDS2TJ105T	1/4W 1M
R607-614	ERDS2TJ221	1/4W 220
R701	ERJ6GEYJ100	1/10W 10
R702	ERJ6GEYJ471V	1/10W 470
R703	ERJ6GEYJ102V	1/10W 1K
R704	ERJ6GEYJ103V	1/10W 10K
R706	ERJ6GEYJ473V	1/10W 47K
R707	ERJ6GEYJ222V	1/10W 2.2K
R708	ERJ6GEYJ683V	1/10W 68K
R709	ERJ6GEYJ122V	1/10W 1.2K
R710	ERJ6GEYJ182V	1/10W 1.8K
R711	ERJ6GEYJ473V	1/10W 47K
R712	ERJ6GEYJ471V	1/10W 470
R714	ERJ6GEYJ473V	1/10W 47K
R715	ERJ6GEYJ223V	1/10W 22K
R716	ERJ6GEYJ104V	1/10W 100K

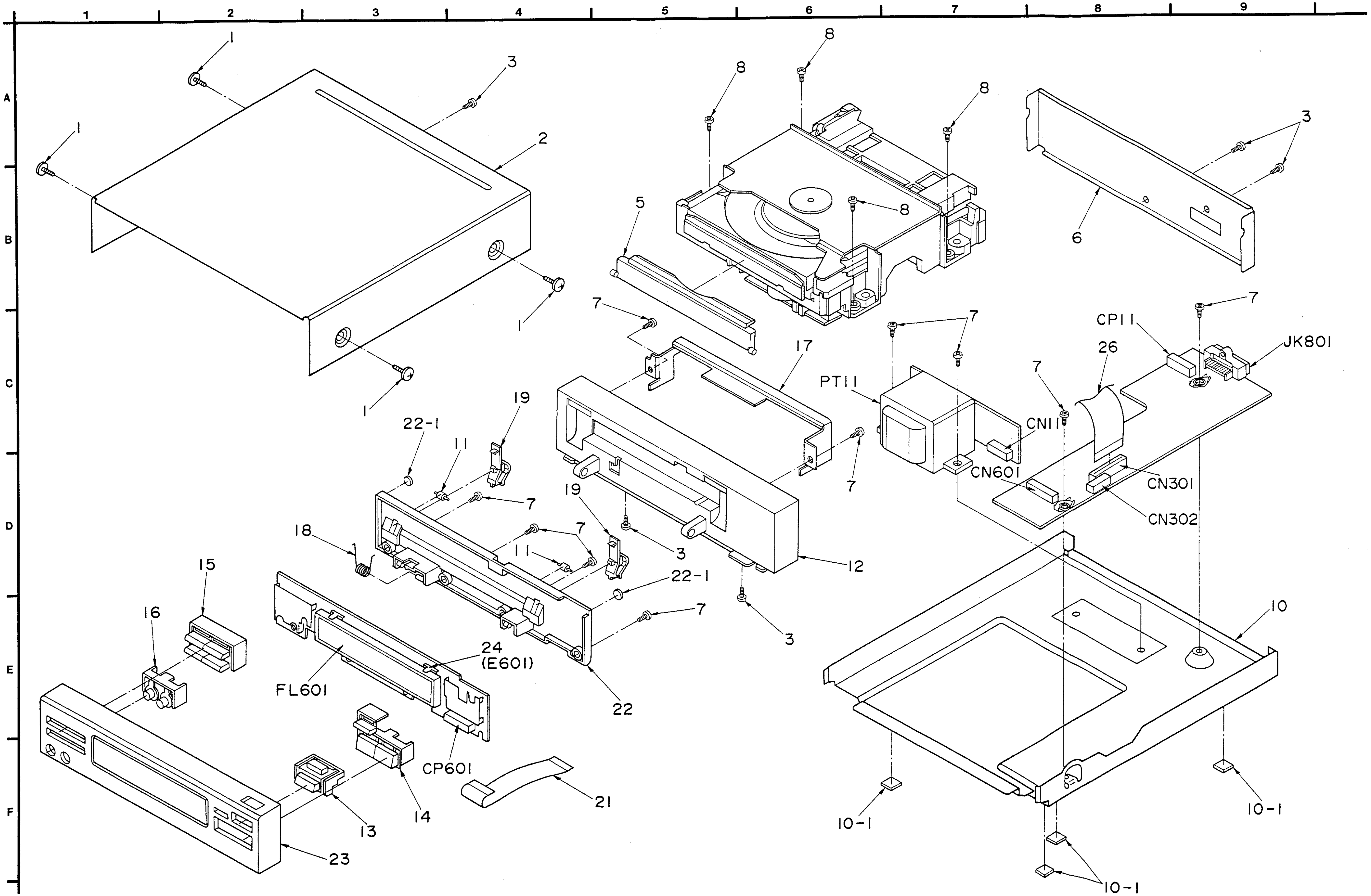
Ref. No.	Part No.	Values & Remarks
R717	ERJ6GEYJ682V	1/10W 6.8K
R718	ERJ6GEYJ223V	1/10W 22K
R719	ERJ6GEYJ123V	1/10W 12K
R720	ERJ6GEYJ273V	1/10W 27K
R721	ERJ6GEYJ823	1/10W 82K
R722	ERJ6GEYJ102V	1/10W 1K
R723, 724	ERJ6GEYJ104V	1/10W 100K
R725	ERJ6GEYJ471V	1/10W 470
R726	ERJ6GEYJ102V	1/10W 1K
R729, 730	ERJ6GEYJ102V	1/10W 1K
R731	ERJ8GEYJ470V	1/8W 47
R732	ERJ6GEYJ562V	1/10W 5.6K
R733	ERJ6GEYJ332V	1/10W 3.3K
R734	ERJ6GEYJ562V	1/10W 5.6K
R735	ERJ6GEYJ222V	1/10W 2.2K
R736	ERJ6GEYJ682V	1/10W 6.8K
R737-739	ERJ6GEYJ562V	1/10W 5.6K
R741-743	ERJ6GEYJ102V	1/10W 1K
R744	ERJ6GEYJ393V	1/10W 39K
R745, 746	ERJ6GEYJ102V	1/10W 1K
R747	ERJ6GEYJ473V	1/10W 47K
R748	ERJ8GEYJ180V	1/8W 18
R817, 818	ERDS2TJ243T	1/4W 24K
R819, 820	ERDS2TJ473	1/4W 47K
R821, 822	ERDS2TJ273	1/4W 27K
R823, 824	ERDS2TJ473	1/4W 47K
R825, 826	ERDS2TJ122	1/4W 1.2K
R827, 828	ERDS2TJ473	1/4W 47K

Ref. No.	Part No.	Values & Remarks
R829, 830	ERDS2TJ471	1/4W 470
R833, 834	ERDS2TJ102	1/4W 1K
R841, 842	ERDS2TJ104	1/4W 100K
R852	ERDS2TJ221	1/4W 220
R853	ERDS2TJ102	1/4W 1K
R854, 855	ERDS2TJ472	1/4W 4.7K
		CAPACITORS
C1, 2	ECBT1E103ZF	25V 0.01U
C3	ECEA1EU222B	25V 2200U
C4	ECEA1EU101	25V 100U
C5	ECBT1H102KB5	50V 1000P
C6	ECEA0JKA470B	6.3V 47U
C7, 8	ECBT1H102KB5	50V 1000P
C9	ECEA1AGE101B	10V 100U
C10	ECEA1AU221	10V 220U
C11	ECEA1CGE470B	16V 47U
C12	ECEA0JU221	6.3V 220U
C13, 14	ECBT1H102KB5	50V 1000P
C15, 16	ECEA1AU470	10V 47U
C17	ECEA1HU101	50V 100U
C18	ECBT1H102KB5	50V 1000P
C19	ECEA0JKA470B	6.3V 47U
C303-305	ECBT1H102KB5	50V 1000P
C402	ECBT1H104ZF5	50V 0.1U
C421	ECEA1HKA010B	50V 1U
C434	ECBT1H104ZF5	50V 0.1U
C601	ECBT1H104ZF5	50V 0.1U
C602	ECBT1E103ZF	25V 0.01U
C603-606	ECBT1H104ZF5	50V 0.1U
C701	ECEA0JKA220	6.3V 22U
C702	ECEA0JKS470	6.3V 47U
C703	ECEA0JKS101I	6.3V 100U
C709	ECUV1C224KBM	16V 0.22U
C710	ECUV1C104MBM	16V 0.1U
C711	ECUE1E103MBN	25V 0.01U
C713	ECEA1CSN4R7I	16V 4.7U
C714	ECEA1HKS010	50V 1U
C715	ECUE1H472KBN	50V 4700P
C716	ECUE1C473KBN	16V 0.047U
C717	ECUE1H681KBN	50V 680P
C718	ECEA1AKS101I	10V 100U
C719	ECUE1E103MBN	25V 0.01U
C720	ECUE1E153MBN	25V 0.015U
C721	ECUE1E103MBN	25V 0.01U
C722	ECEA0JKS470	6.3V 47U
C723	ECUV1C104MBM	16V 0.1U
C724	ECUV1E333MBN	H 25V 0.033U
C725	ECUE1E103MBN	25V 0.01U
C726	ECUE1H471KBN	50V 470P
C727	ECEA0JKS470	6.3V 47U
C728, 729	ECUV1C104MBM	16V 0.1U
C730	ECUV1C224KBM	16V 0.22U
C731	ECEA0JKS331I	6.3V 330U
C732	ECUE1H102MBN	50V 1000P
C733	ECEA0JKS101I	6.3V 100U
C734	ECUE1E223MBN	25V 0.022U
C735	ECUV1C224KBM	16V 0.22U
C737	ECUV1C224KBM	16V 0.22U
C738	ECEA0JKS101I	6.3V 100U
C739	ECUE1E103MBN	25V 0.01U
C740	ECUE1H472MBN	50V 4700P
C741	ECUV1C224KBM	16V 0.22U
C742	ECUV1C104MBM	16V 0.1U
C743	ECEA0JKS331I	6.3V 330U
C744, 745	ECUE1H102KBN	50V 1000P
C746	ECEA0JKS101I	6.3V 100U
C747	ECUV1C104MBM	16V 0.1U
C748	ECEA1HKS010	50V 1U
C749	ECUE1E103MBN	25V 0.01U
C750	ECUE1H050DCN	50V 5P
C751	ECUV1C224KBM	16V 0.22U
C752	ECUV1C104MBM	16V 0.1U
C753, 754	ECEA1HKS010	50V 1U
C755	ECUV1C104MBM	16V 0.1U
C756, 757	ECUE1H050DCN	50V 5P
C758	ECUV1C224KBM	16V 0.22U
C763	ECUE1E103MBN	25V 0.01U
C764	ECUE1H331KBN	50V 330P
C790	ECA1AKF820E	10V 82U
C811, 812	ECBT1H102KB5	50V 1000P
C813, 814	ECBT1H101KB5	50V 100P
C815, 816	ECEA1HU220	50V 22U
C819, 820	ECBT1H101KB5	50V 100P
C827, 828	ECEA1AU101	10V 100U
		CHIP JUMPER(S)
J701	ERJ6GEY0R00V	1/10W 0
J703-710	ERJ6GEY0R00V	1/10W 0

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS LIST	
1	RHD30007	SCREW	
2	RKM0158-K	CABINET	
3	XTBS3+8JFZ1	SCREW	
5	RGK0357-K	ORNAMENT	
6	RGR0115A-C1	REAR PANEL	(E)
6	RGR0115A-D	REAR PANEL	(GC)
7	XTB3+8JFZ	SCREW	
8	XTB3+8FFZ	SCREW	
10	RFKJLCH7	CHASSIS ASS'Y	
10-1	SHG1654	FOOT	
11	RDP0045	ROLLER	
12	RGP0195-K	FRONT CABINET	
13	RGU0549-K	BUTTON, OPEN/CLOSE	
14	RGU0550-K	BUTTON, STOP	
15	RGU0551-K	BUTTON, SKIP	
16	RGU0552-A	BUTTON, EDIT	
17	RMA0479	ANGLE	
18	RMB0192	SPRING	
19	RMR0415-K	CAM	
21	RWJ5520130CC	CABLE	
22	RFKHLCH7A	FRONT PANEL COVER ASS'Y	
22-1	RMG0113	RUBBER	
23	RFKGLCH7E-K	FRONT PANEL ASS'Y	(E)
23	RFKHLCH7B	FRONT PANEL ASS'Y	(GC)
24(E601)	RMN0122	FL HOLDER	

Ref. No.	Part No.	Part Name & Description	Remarks

■ CABINET PARTS LOCATION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CP11
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JK801
CN11
CN601
CN301
CN302
19
22-1
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18
7
11
3
12
22-1
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16
24
(E601)
FL601
22
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CP601
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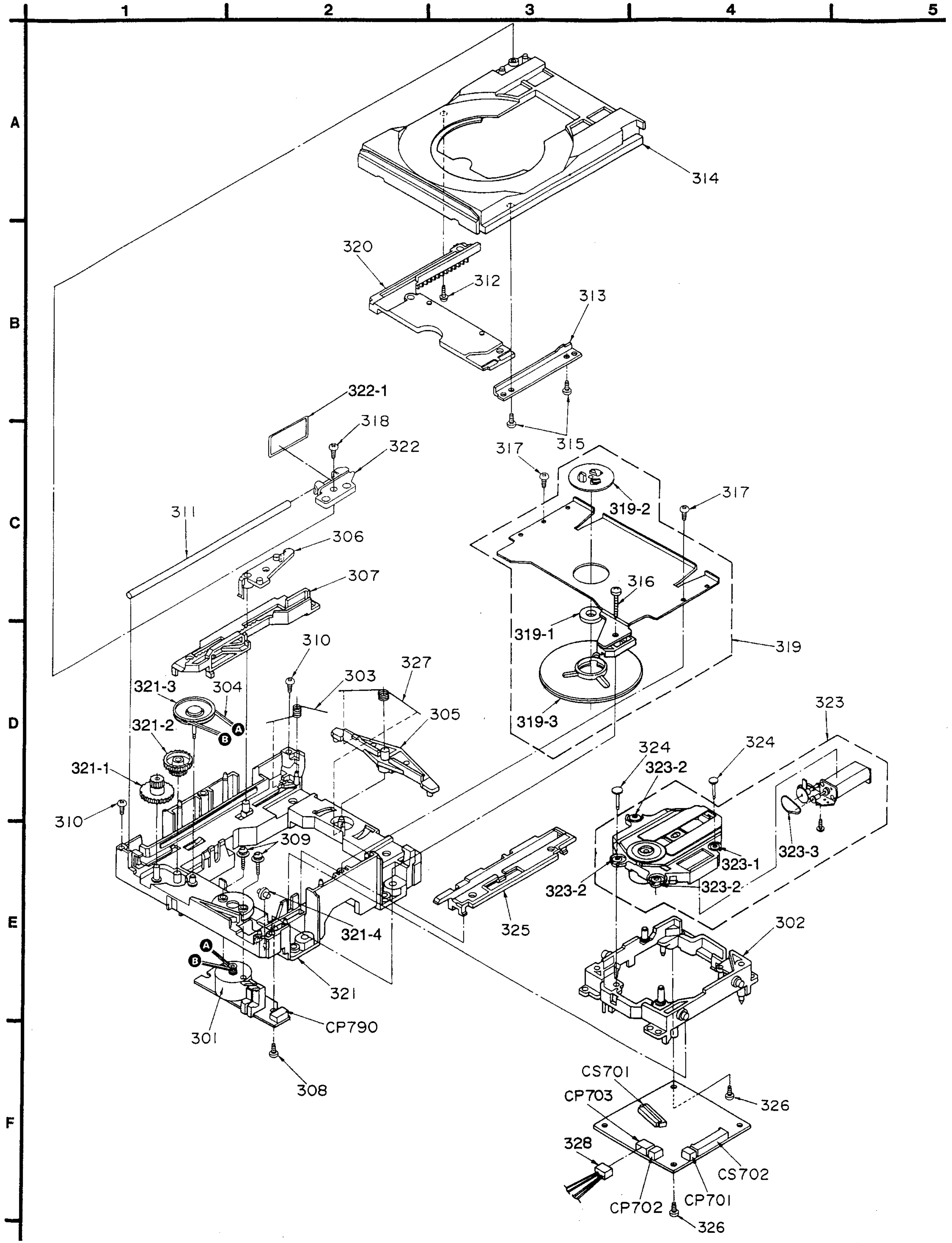
10-1
10-1
10-1

Ref. No.	Part No.	Part Name & Description	Remarks
		LOADING UNIT PARTS	
301	REMD019	MOTOR ASS'Y	
302	RMKD105	CHASSIS	
303	RME0063	SPRING	
304	RMG0158	BELT	
305	RML0177	LEVER	
306	RML0178	LEVER	
307	RMMD058	SLIDE PLATE 1	
308	XTN26+6G	SCREW	
309	XYN2+F6FZ	SCREW	
310	RHD20010	SCREW	
311	RMU0046	GUIDE SHAFT	
312	RHD20009-1	SCREW	
313	RMA0328	HOLDER	
314	RMKD103	DISK TRAY	
315	XTN2+8G	SCREW	
316	XTB3+25GFZ	SCREW	
317	XTN26+6G	SCREW	
318	XTN3+8JFZ	SCREW	
319	RXQ0122	TRAY HOLDER	
319-1	RHM245ZA	MAGNET	
319-2	RMR0334	HOLDER	
319-3	RXQ0123	DISK HOLDER	
320	RFKNXDT77B-H	GEAR ASS'Y	
321	RFKJXDT77-H	CHASSIS ASS'Y	
321-1	RDG0142	GEAR	
321-2	RDG0143	DRIVE GEAR 1	
321-3	RDP0041	PULLEY	
321-4	SDRD14	ROLLER B	
322	RFKNXDT77C-H	HOLDER	
322-1	RMG0159	RUBBER	
323	SODD110Z	TRAVERSE UNIT	
323-1	SHGD112	RUBBER A	
323-2	SHGD113-1	RUBBER B	
323-3	RDV0014	BELT	
324	RMS0123-1	PIN	
325	RMM0059	SLIDE PLATE 2	
326	XTV26+6G	SCREW	
327	RME0087	SPRING	

■ CABINET PARTS LOCATION (Loading unit parts)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319-1
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321-1
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323-2
324
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309
323-1
323-3
323-2
323-2
325
321-4
302
321
CP790
301
308
CS701
CP703
326
328
CS702
CP702
CP701
326

ORDER NO. AD9205159S8

Service Manual

Compact Disc Player

SL-CH7

Colour

(K) .... Black Type

Supplement

Compact Disc Player

Please file and use this supplement manual together with the service manual for Model No. SL-CH7 Order No. AD9104084C8.

Note: This supplement is intended to provide additional information or corrections to the existing service manual for model No. SL-CH7. Be sure to update your service manual for future reference.

Areas

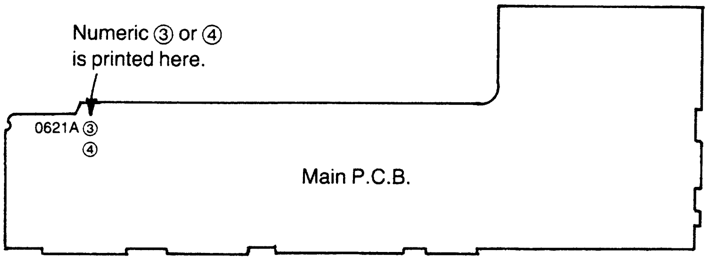
Suffix for Model No.	Area	Colour
(E)	Europe	(K)
(GC)	Asia, Latin America, Middle Near East and Africa	

System: SC-CH7

Resistors have been added to the Main P.C.B. because of performance improvement.
There are two types of the Main P.C.B. on which new resistors are mounted.

■ How to recognize the type of the Main P.C.B.

The numeric ③ or ④ can be found after the Main P.C.B. number.
For the Main P.C.B. on which ③ is printed, see page 2.
For the Main P.C.B. on which ④ is printed, see page 3.

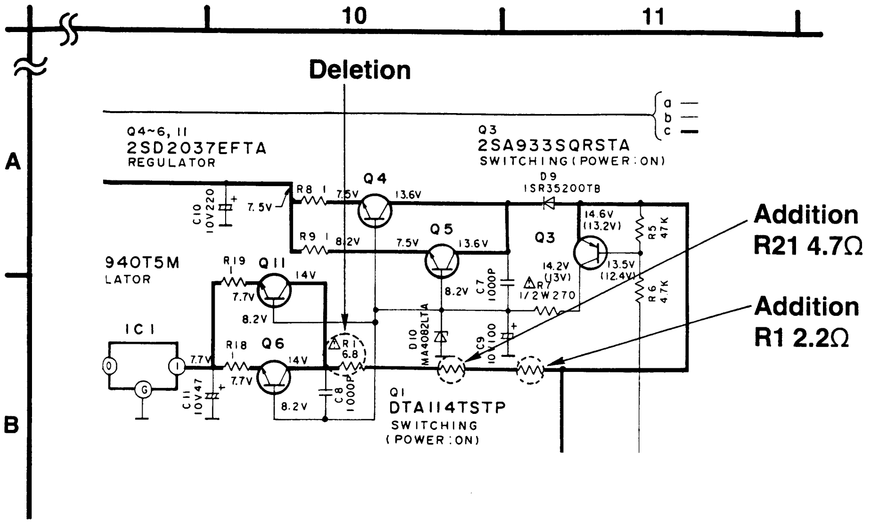


■ REPLACEMENT PARTS LIST

Ref. No.	Change of Part Number		Description	Remarks
	SL-CH7 (E) (GC) (Original)	**SL-CH7 (E) (GC) (Supplement)**		
RESISTOR				
R1	ERD2FCVJ6R8T	——	RESISTORS (6.8Ω)	Deletion
R1	——	**ERQ16NKW2R2E**	RESISTORS (2.2Ω)	Addition
R21	——	**ERDS2TJ4R7T**	RESISTORS (4.7Ω)	Addition

Technics/Panasonic
(E) (GC)

■ SCHEMATIC DIAGRAM


10
11
A
B
a
b
c
Q4~6, 11
2SD2037EFTA
REGULATOR
Q3
2SA933SQRSTA
SWITCHING (POWER : ON)
D9
1SR35200TB
Q4
R8 1
7.5V
13.6V
C10 10V220
7.5V
R9 1
8.2V
Q5
7.5V
13.6V
14.6V (13.2V)
Q3
R5 47K
940T5M
LATOR
R19
Q11
14V
7.7V
8.2V
14.2V (13V)
C7 1000P
ΔR 1/2W 270
13.5V (12.4V)
R6 4.7K
IC1
R18
Q6
7.7V
14V
ΔR1 6.8
D10 MA4082LTA
C9 10V100
C11 10V47
C8 1000P
8.2V
O
I
G
Q1
DTA114TSTP
SWITCHING (POWER : ON)

Deletion

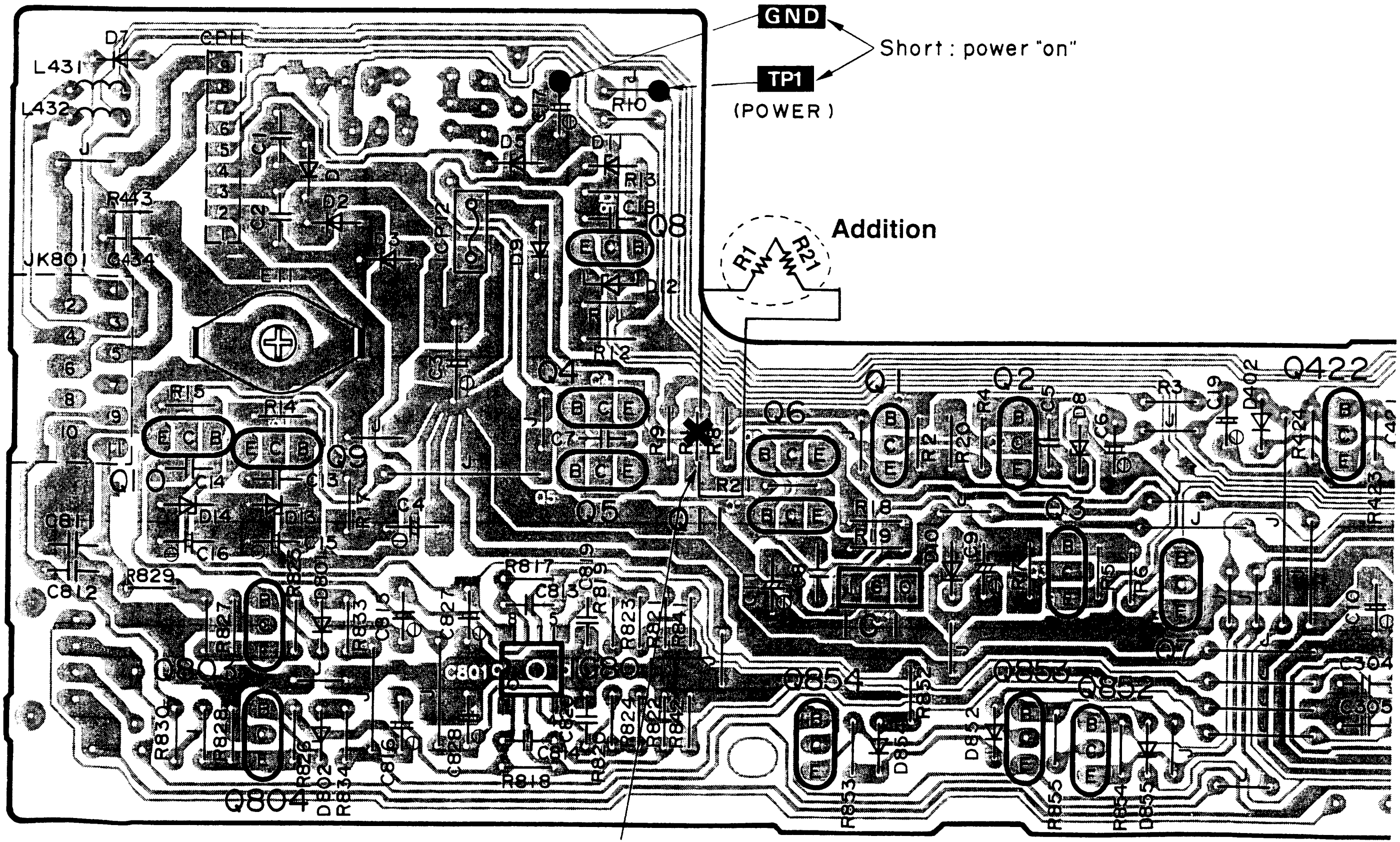
Addition R21 4.7Ω

Addition R1 2.2Ω

■ PRINTED CIRCUIT BOARDS

For Main P.C.B. ③, refer to the Circuit Board Diagram shown in the Service manual. R1 and R21 are added to this board from the reverse side.

D MAIN P.C.B.

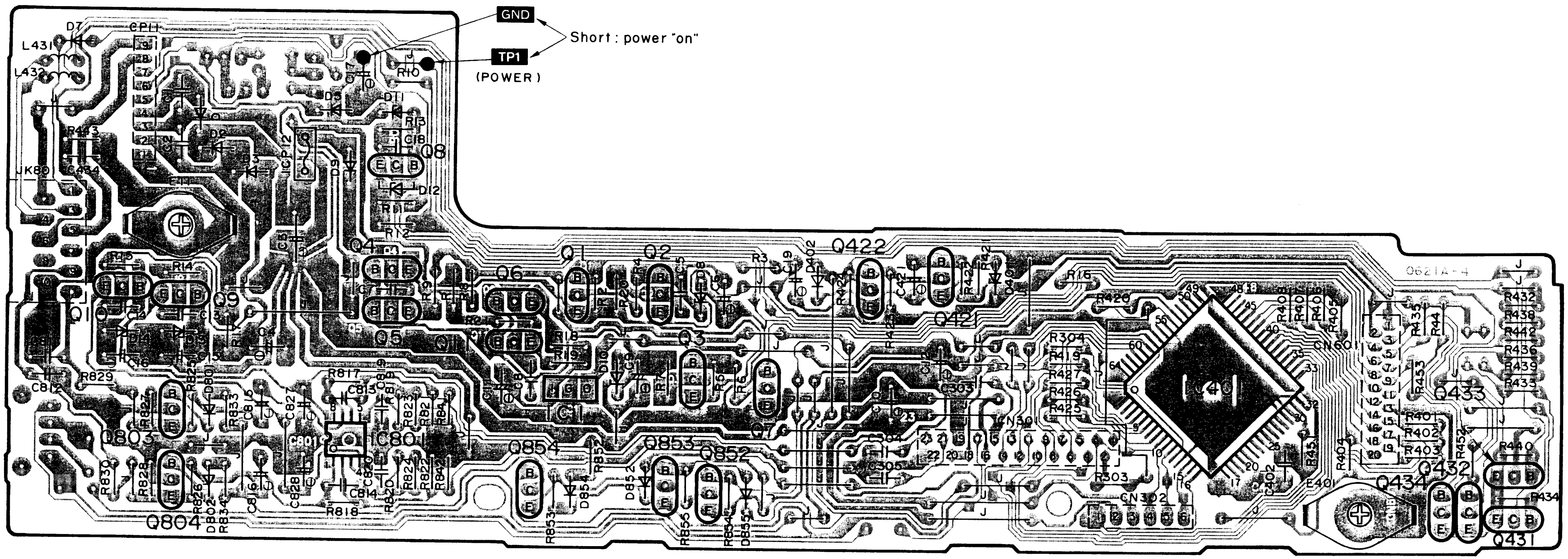

GND
TP1
(POWER)
Short : power "on"
Addition
R1
R21
D7
L431
L432
J
R443
JK801
C434
R10
D3
D1
R13
C18
Q8
D2
D9
D12
R12
Q4
Q5
Q6
R15
R14
Q10
C14
C13
D14
D13
C16
R11
C4
C7
R9
R21
R2
R18
R19
Q1
Q2
Q3
R3
R4
R20
R5
R6
C5
C6
D8
C19
D402
Q422
R424
R423
C10
IC1
D10
C9
Q7
C304
C305
C811
C812
R829
R827
R826
R817
C813
C819
R819
C817
R823
R824
R833
C815
R832
C801
Q801
Q803
Q804
R830
R828
C816
C828
R834
D802
R818
C814
R822
R821
Q854
Q853
Q852
R852
D854
D853
R853
R855
R854
D852

Deletion (R1)

■ PRINTED CIRCUIT BOADS

Refer to this Circuit Board Diagram for Main P.C.B. ④. R1 and R21 are added to this circuit board.

D MAIN P.C.B.


GND
TP1
(POWER)
Short : power "on"
IC401
IC801
CN601
CN301
CN302
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q421
Q422
Q431
Q432
Q433
Q434
Q803
Q804
Q852
Q853
Q854
0621A-4

Printed in Japan
F92050710HH/FF/KK/TN
2010TO05

ORDER NO. AD9304129S0
A6

Service Manual

Compact Deck Player

SL-CH7

Colour

(K)········Black Type	

Supplement

Compact Deck Player

Please file and use this supplement manual together with the service manual for Model No. SL-CH7 (PP), Order No. AD9101028C1 or Model No. SL-CH7 (E) (GC), Order No. AD9104084C8.

Note: This supplement is intended to provide additional information or corrections to the existing service manual for model No. SL-CH7. Be sure to update your service manual for future reference.

Areas

Suffix for Model No.	Area	Colour
(PP)	U.S.A / Canada	(K)
(E)	Europe	
(GC)	Asia, Latin America, Middle Near East, Africa and Oceania	

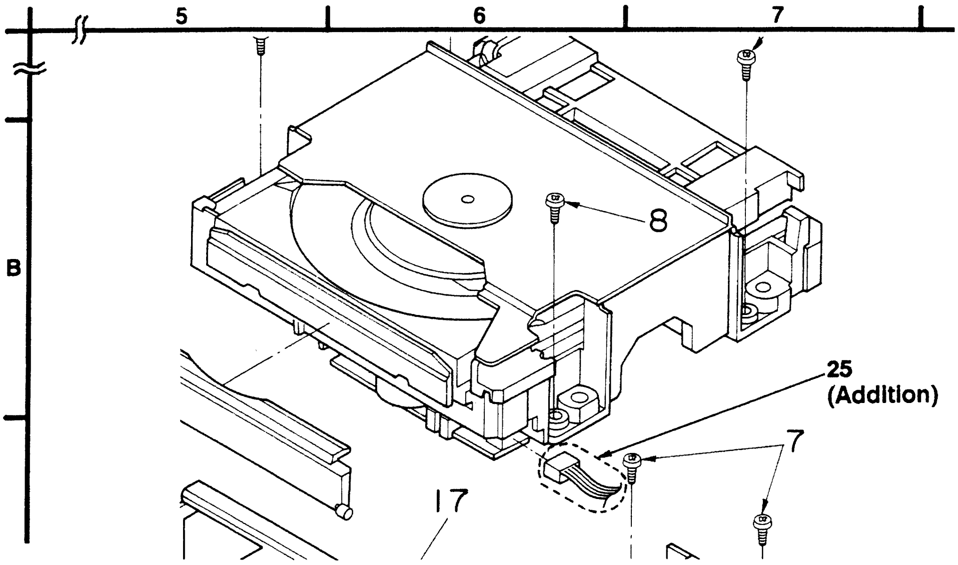
System: SC-CH7

CORRECTION

■ REPLACEMENT PARTS LIST

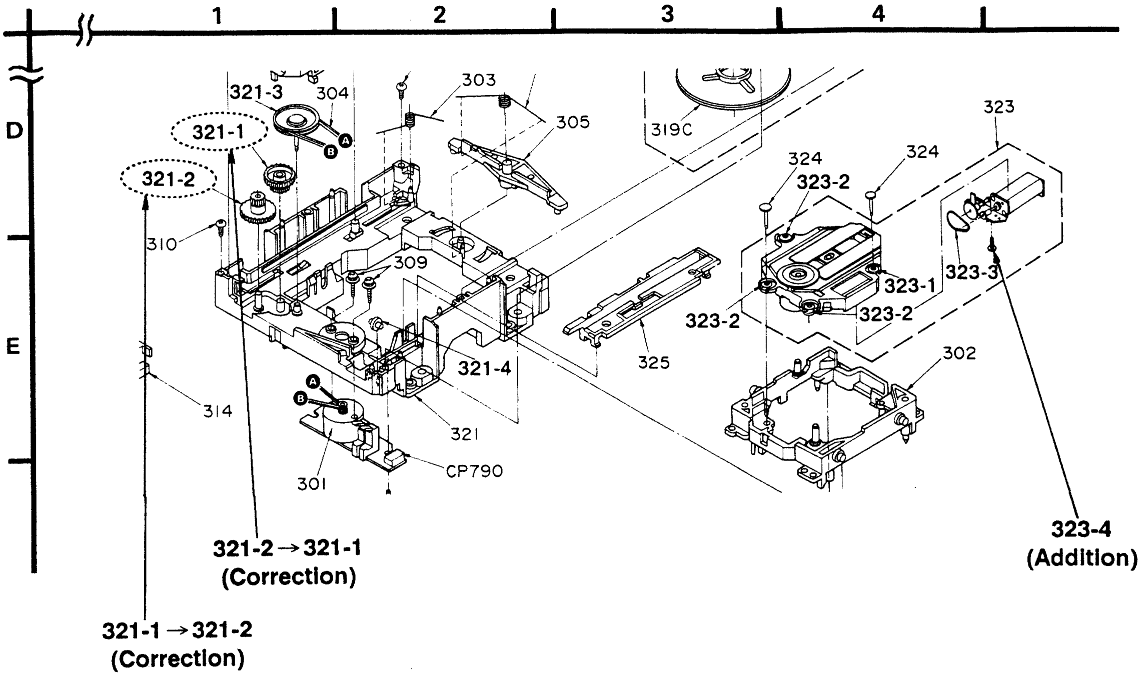
Ref. No.	Part Number		Description	Remarks
	ORIGINAL	SUPPLEMENT		
CABINET PARTS				
25	————	REX0295	FLEXIBLE CABLE	Addition
26	————	RWJ5223120EE	FLEXIBLE CABLE	Addition
22-1	RMG0113	RMG0265	RUBBER	Change
323-4	————	SNSD38	SCREW	Addition

■ CABINET PARTS LOCATION



Technics/Panasonic
(E) (PP) (GC)

■ CABINET PARTS LOCATION (Loading unit parts)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323-3
323-2
323-2
321-4
325
302
314
321
301
CP790
A
B

321-2 → 321-1
(Correction)

321-1 → 321-2
(Correction)

323-4
(Addition)

Printed in Japan
K930413600HH/TN

ORDER NO. AD9104083C8

Service Manual

LW/MW/FM Stereo Tuner

Tuner

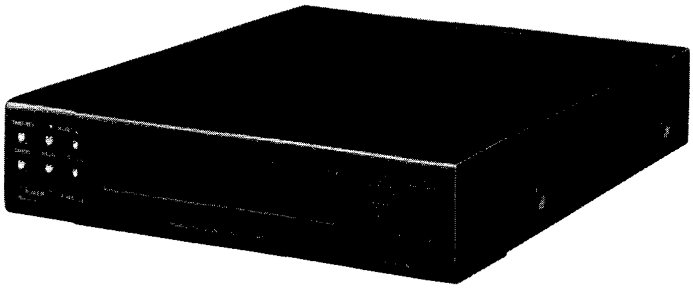
ST-CH7L

Color

(K) .... Black Type

Areas

Country Code	Area	Color
(E)	Continental Europe.	(K)
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	



Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

System: SC-CH7

■ SPECIFICATIONS

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz (0.05 MHz step)
Sensitivity	1.5 μV (IHF, usable)
S/N 30 dB	1.5 μV (75Ω)
S/N 26 dB	1.3 μV (75Ω)
S/N 20 dB	1.2 μV (75Ω)
IHF 46 dB stereo quieting sensitivity	28 μV (75Ω)
Total harmonic distortion	
MONO	0.2%
STEREO	0.3%
S/N	
MONO	60 dB (74 dB, IHF)
STEREO	58 dB (70 dB, IHF)
Frequency response	20 Hz~15 kHz, +0.5 dB~−1.5 dB
Alternate channel selectivity ±400 kHz	50 dB
Stereo separation 1 kHz	40 dB
10 kHz	30 dB
Channel balance (250 Hz~6,300 Hz)	±1.5 dB
Limiting point	1.2 μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminal	75Ω (unbalanced)

■ LW/MW TUNER SECTION

Frequency range	
MW	522~1611 kHz (9 kHz-step) 530~1620 kHz (10 kHz-step)
LW	144~288 kHz (9 kHz-step) 146~290 kHz (+2 kHz-shift)
Sensitivity (S/N 20 dB)	
MW	20 μV, 300 μV/m
LW	50 μV
Selectivity (±9 kHz)	
MW	(at 999 kHz) 50 dB
LW	(at 216 kHz) 50 dB

■ TIMER SECTION

Clock	Quartz-lock type 24-hour indication
Functions	24-hour programmable; weekly (1 time) once only (1 time) sleep (1~120 min., 1-min. intervals)
Setting intervals	1 minute~23 hours, 59 minutes (at 1 min. intervals)

■ GENERAL

Power consumption	8 W
Dimensions (W×H×D)	215×55×295 mm (8$\frac{15}{32}$"×2$\frac{5}{32}$"×11$\frac{5}{8}$")
Weight	1.4 kg (3.0 lb.)

Notes:

1. Total harmonic distortion is measured by the digital spectrum analyzer.
2. Specifications are subject to change without notice.
3. Weight and dimensions shown are approximate.

System	Tuner	Amplifier	CD Player	Cassette Deck	Speakers
SC-CH7	ST-CH7L	SU-CH7	SL-CH7	RS-CH7	SB-CH7

Technics / Panasonic

(E) **(GC) (GN)**

■ CONTENTS

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DESCRIPTION OF FL PANEL	7
FUNCTION OF IC TERMINALS	8
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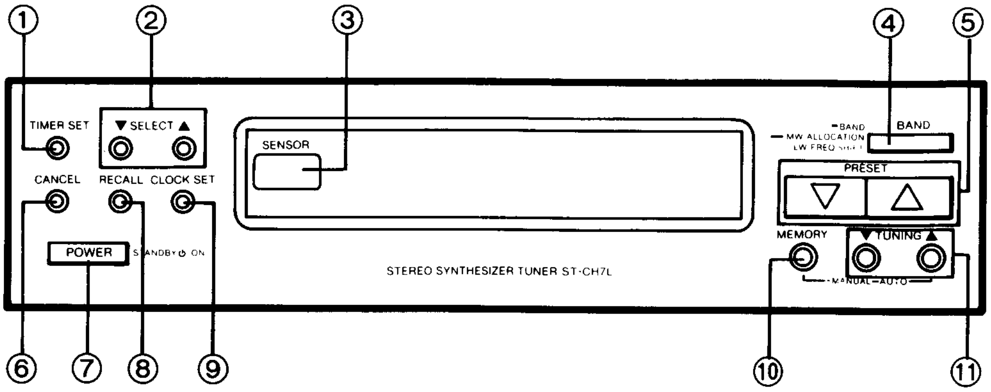
CABINET PARTS LOCATIONS	21

Note:
Refer to the service manual for Model No. SU-CH7, Order No. AD9104082C8 for information on ACCESSORIES, INSTALLATION OF THE SYSTEM, CONNECTIONS and PACKAGING.

■ LOCATION OF CONTROLS



Tuner: control section

① **Timer set button (TIMER SET)**
This button is used when making the timer setting.

② **Timer select buttons (▼ SELECT ▲)**
These buttons are used when setting the time. And when making the timer setting, to select the type of timer operation, the day, the time, etc.

③ **Remote signal sensor (SENSOR)**

④ **Band select button (BAND)**
This button is used to select either the MW, LW or FM band.

⑤ **Preset-tuning buttons (▽ PRESET △)**
These buttons are used to select channel numbers for a broadcasting station which has been stored in the tuner's memory.

⑥ **Timer cancel button (CANCEL)**
This button is used to cancel the timer setting.

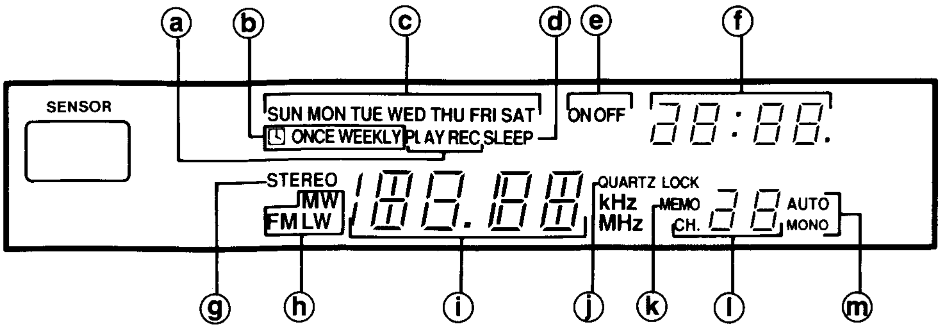
⑦ **Power "STANDBY ⏻/ON" switch (POWER STANDBY ⏻/ON)**
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

⑧ **Timer setting confirmation button (RECALL)**
This button is used to confirm the timer setting.

⑨ **Clock set button (CLOCK SET)**
This button is used to set the present time.

⑩ **Memory button (MEMORY)**
This button is used when presetting broadcast station frequencies into memory.

⑪ **Tuning buttons (▼ TUNING ▲)**
These buttons are used for tuning the desired broadcast station.



Tuner: display section

ⓐ Timer play/recording indicator (PLAY, REC)

This indicator shows that timer play mode or timer recording mode is activated.

ⓑ Timer mode-indicator (⏲ ONCE, WEEKLY)

This indicator shows the timer operation mode (ONCE or WEEKLY).

ⓒ Day display (SUN–SAT)

This display shows the present day, or the day the timer has been set for, if used.

ⓓ Sleep indicator (SLEEP)

Illuminates when the sleep timer is activated.

ⓔ Timer ON/OFF indicator (ON, OFF)

This indicator shows whether the times for timer switch-ON and switch-OFF have been set.

ⓕ Time display

This display shows the present time, or the time the timer has been set for.

ⓖ FM stereo indicator (STEREO)

This indicator automatically illuminates when an FM stereo broadcast is being received. It will not illuminate if the FM mode button is used to select monaural mode.

ⓗ Band indicator (FM, MW, LW)

Illuminates to show which band is selected.

ⓘ Digital frequency display

Displays the broadcast frequencies.

ⓙ Quartz lock indicator (QUARTZ LOCK)

This indicator illuminates when the unit is precisely tuned to a broadcast station.

ⓚ Memory indicator (MEMO)

This indicator illuminates when the memory button is pressed.

ⓛ Preset channel display

This display shows the channel number selected by the preset-tuning buttons.

ⓜ FM mode indicator (AUTO, MONO)

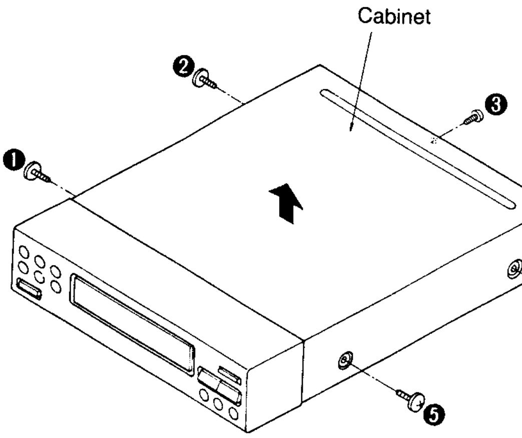
When FM broadcasts are being received, usually the "AUTO" indication is illuminated. When the FM mode is set to monaural, "MONO" illuminates.

■ DISASSEMBLY INSTRUCTIONS

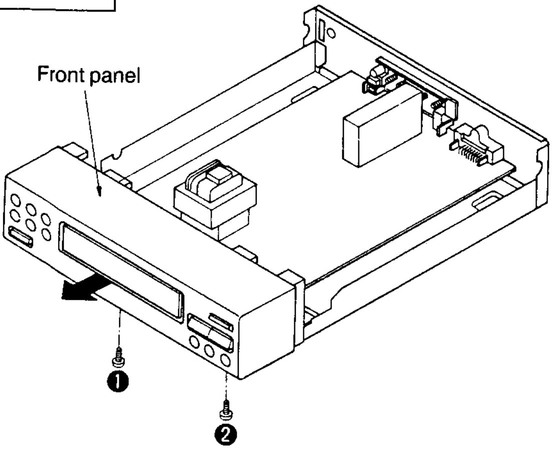
"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	**Removal of the Cabinet**
Procedure 1	

- Remove the 5 screws (❶~❺).

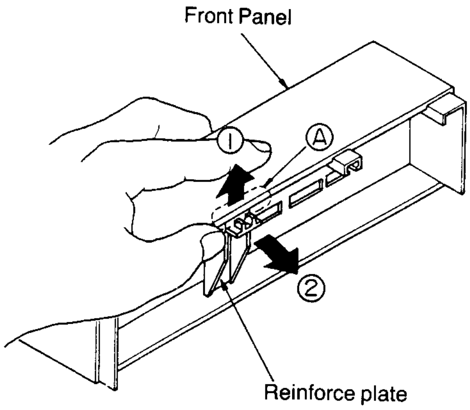

Cabinet
❶
❷
❸
❹
❺

Ref. No. 2	**Removal of the Front Panel**
Procedure 1→2	

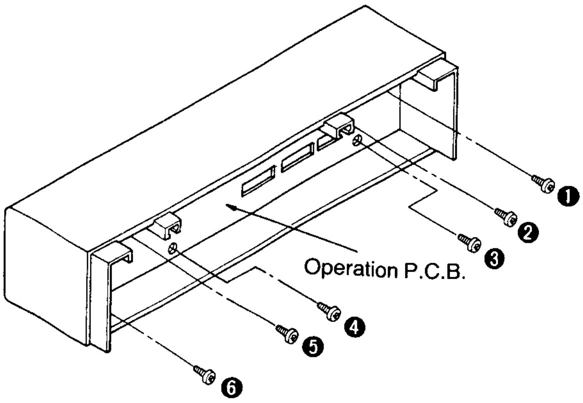

Front panel
❶
❷

1. Remove the 2 screws (❶, ❷).
2. Remove the front panel in the direction of arrow.

Ref. No. 3	**Removal of the Operation P.C.B.**
Procedure 1→2→3	

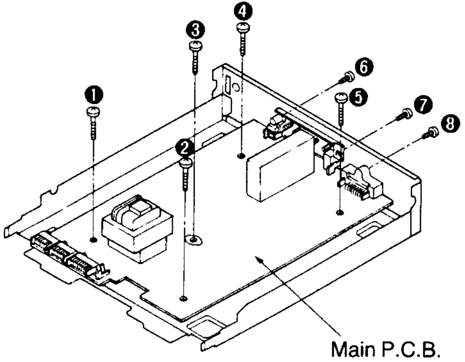

Front Panel
①
Ⓐ
②
Reinforce plate

1. Pull up the position Ⓐ of the front panel in the direction of the arrow ①, and then remove the reinforce plate in the direction of the arrow ②.


Operation P.C.B.
❶
❷
❸
❹
❺
❻

2. Remove the 6 screws (❶~❻).

Ref. No. 4	**Removal of the Main P.C.B.**
Procedure 1→2→4	


❶
❷
❸
❹
❺
❻
❼
❽
Main P.C.B.

- Remove the 8 screws (❶~❽).

■ MEASUREMENTS AND ADJUSTMENTS

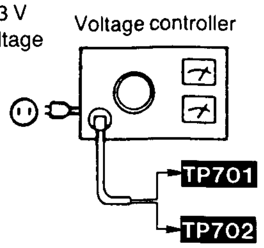
This TUNER (ST-CH7L) is powered by the amplifier (SU-CH7). To adjust it or check operations as a separate unit, follow the steps below.

1. **Apply a power supply voltage of AC 23 V to TP701 and TP702.**
2. **Power supply switch: ON**

HOW TO CONNECT

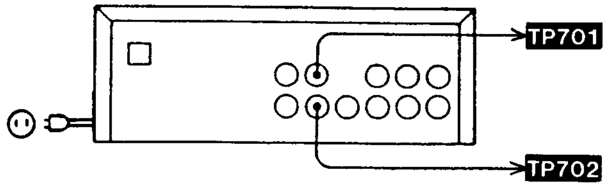
Note:
Apply a power supply voltage of AC 23 V to TP701 and TP702 by using a Voltage Controller. If it is not available, use a Power Supply Fixture (SZZA1058C) instead.

Voltage controller

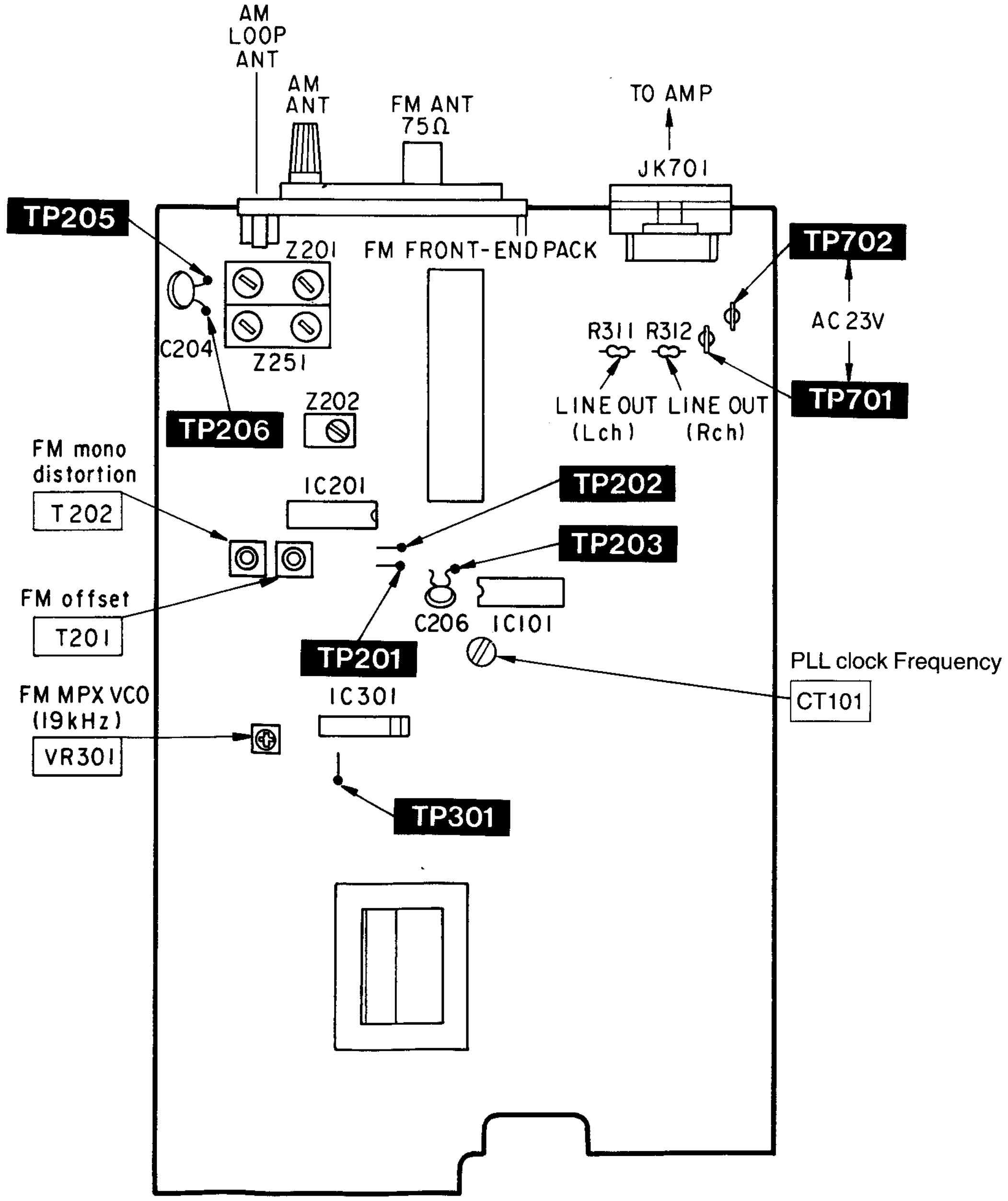

TP701
TP702

OR

Power Supply Fixture (SZZA1058C)


TP701
TP702

•ADJUSTMENT POINT


AM LOOP ANT
AM ANT
FM ANT 75Ω
TO AMP
JK701
TP205
Z201
FM FRONT-END PACK
TP702
C204
Z251
R311 R312
AC 23V
TP206
Z202
LINE OUT (Lch)
LINE OUT (Rch)
TP701
FM mono distortion
T202
IC201
TP202
TP203
FM offset
T201
C206
IC101
TP201
PLL clock Frequency
CT101
FM MPX VCO (19kHz)
VR301
IC301
TP301

•FM ADJUSTMENT

Control positions and equipment used

- •FM signal generator (FM-SG)
- •Stereo modulator
- •Distortion analyser
- •DC electronic voltmeter (EVM)
- •Frequency counter
- •Choke coil (100 μH)
- •Resistor (100 kΩ)

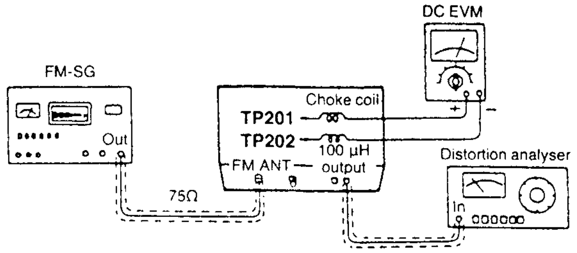
Note: For Z201 (AM ANT and OSC coil), Z202 (AM-IFT), they are supplied as adjusted parts. So, do not turn the cores of the parts. It is not necessary to adjust the AM circuit.

FM OFFSET VOLTAGE AND MONO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to **"FM"** mode.
3. Set the radio frequency display and signal generator to **100.10 MHz**.
4. Adjust the core of **T201** so that the voltage measured in signal mode is **0 mV (0±20 mV)** in 300 mV range.
5. Adjust **T202** so that the distortion factor of L-CH and R-CH is minimized.
6. Repeat steps 4 and 5.

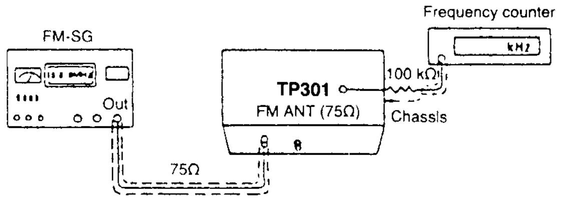
Note: The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency........ 1 kHz
Output level .... 66 dB


DC EVM
FM-SG
Out
Choke coil
TP201
TP202
100 μH
FM ANT
output
75Ω
Distortion analyser
In

FM MPX VCO ADJUSTMENT

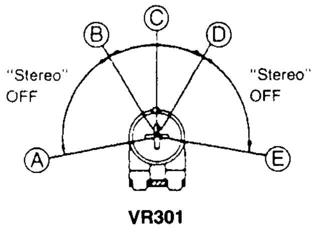
1. Test equipment connection is shown in figure.
2. Set the unit to **"stereo"** position.
3. Set the radio frequency display and signal generator to **100.10 MHz**.
4. Adjust **VR501** for **19 kHz±30 Hz** on frequency counter reading.


Frequency counter
kHz
FM-SG
Out
TP301
100 kΩ
FM ANT (75Ω)
Chassis
75Ω

USING ALTERNATE SYSTEM

1. Receive the stereo broadcast.
2. Adjust **VR301** until stereo indicator lights up. Fix the arm of **VR301** as shown in gifure.

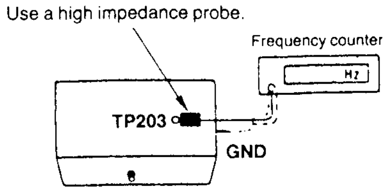
FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency .... 0 kHz
Output level .... 66 dB

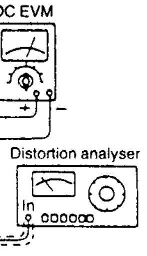

Ⓑ
Ⓒ
Ⓓ
"Stereo" OFF
"Stereo" OFF
Ⓐ
Ⓔ
VR301

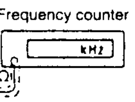
Ⓐ–Ⓑ,
Ⓓ–Ⓔ .... "Stereo" OFF position
Ⓑ–Ⓓ .... "Stereo" ON position (Indicator lighting)
Ⓒ .... Adjust point of pilot circuit

PLL CLOCK FREQUENCY ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Adjust **CT101** for **2070±0.010 kHz (2050±0.010 kHz...GC only)** on frequency counter reading.


Use a high impedance probe.
Frequency counter
Hz
TP203
GND





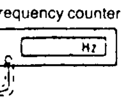
sls

eo"

ion

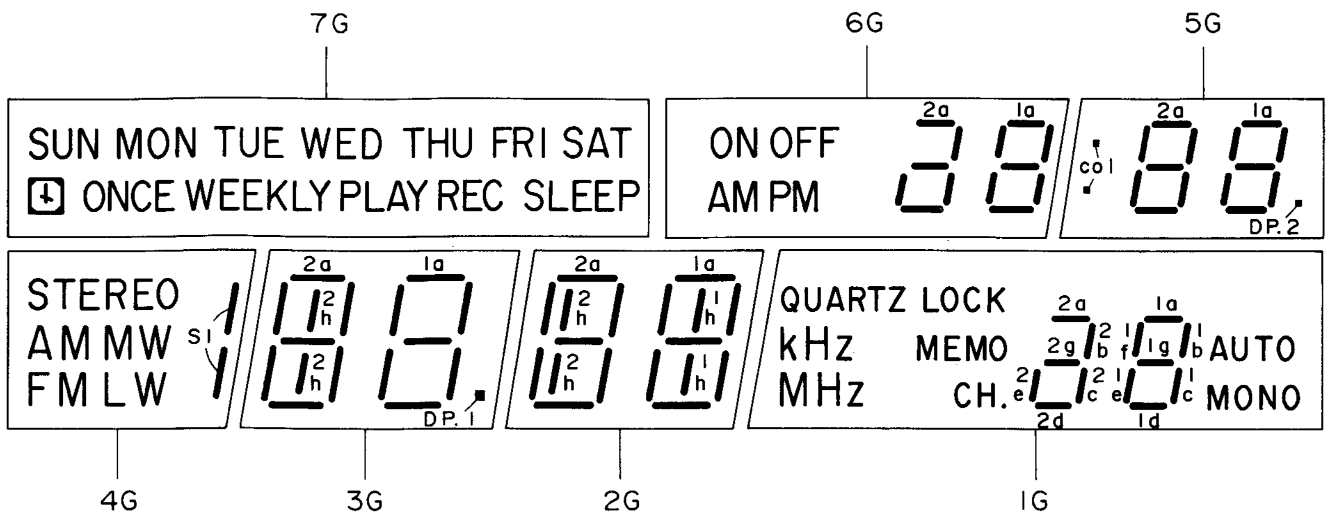
on

circuit



■ DESCRIPTION OF FL PANEL [FL901 (RSL0096-F)]

•GRID ASSIGNMENT



•PIN CONNECTION

PIN NO.	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	P7	P15	P14	P13	P12	P11	P10	P9	P8	P0	P1	P2	P3	P4	P5	P6	P16	NC	1G	2G	3G	4G	5G	6G	7G	NP	F1	F1

Note: 1) F1, F2 .... Filament
2) NP .... No pin
3) 1G~8G .... Grid

•ANODE CONNECTION

	7G	6G	5G	4G	3G	2G	1G
P0	SLEEP	AM	2d	LW	2d	2d	CH.
P1	—	PM	2e	FM	2e	2e	MHz
P2	WEEKLY	2c	2c	AM	2c	2c	kHz
P3	—	—	2g	MW	2g	2g	2a, 2d, 2e, 2g
P4	ONCE	—	2f	—	2f	2f	MEMO
P5	—	2b	2b	—	2b	2b	AUTO
P6	⏀	2a, 2d, 2e, 2g	2a	STEREO	2a	2a	QUARTZ LOCK
P7	PLAY	ON	col	S1	2h	2h	2b
P8	WED	1d	1d	—	1d	1d	1d
P9	SAT	1e	1e	—	1e	1e	1e
P10	TUE	1c	1c	—	1c	1c	1c
P11	FRI	1g	1g	—	1g	1g	1g
P12	MON	1f	1f	—	1f	1f	1f
P13	THU	1b	1b	—	1b	1b	1b
P14	SUN	1a	1a	—	1a	1a	1a
P15	REC	OFF	DP, 2	—	DP, 1	1h	2c
P16	—	—	—	—	—	—	MONO

■ FUNCTIONS OF IC TERMINALS

•IC901 (MN187125STT1)

Pin No.	Mark	I/O Division	Function
1	VDD	I	Power supply (+B)
2	OSC2	I	Connected to crystal oscillator (X901) (4.19 MHz)
3	OSC1	O	
4	VSS	I	Connected to ground terminal
5	X1	I	Connected to ground terminal
6	X0	O	Not connected
7	KEY2	I	Key scan signal input
8	KEY1 BIN	I	Connect to ground terminal
9	CR	I	Not connected
10	$\overline{\text{STEREO}}$	I	Stereo input Inputs when stereo signal receipt "L", monaural signal receipt "H".
11	DIR	I	When broadcasting receipt "L", stereo/normal broadcasting receipt "H". Not connected
12	MONO	O	Auto/mono change over terminal.
13 14	$\overline{\text{MFRO}}$	O	Remote control signal terminal. Not connected
15	INT	I	Remote control input
16	POWER DOWN	I	Power supply level detection
17	$\overline{\text{SDC}}$	O	DTS selective output terminal. Not connected
18	$\overline{\text{BM}}$		
19	POWER	O	AC output Put out for "H" when moving. For cutting relay dirive of main power supply. Becomes "H" when PLL is moving. Reverse when put the power key.
20	TB	I	Band data input
21	RESET	I	Reset signal input Input of reset for micro computer stand
22	SBT1	O	Clock terminal for serial data.
23	CE	O	Serial transmission operation Chip enable terminal
24	SBO1	O	Serial data signal output
25	CLOCK OUT	O	External control clock signal input-output
26	CLOCK IN	I	
27	DATA OUT	O	External control data signal output
28	NC	—	Not connected
29	CM	I	Connectd to ground terminal
30	DATA IN	I	External control data signal input
31	SD	I	Input for stop signal during auto tuning. Stops auto tuning at high level. Receipt: H, No signal: L
32	MUT	O	Output for erasing shock noise when lock-off at PLL. <Muting outut> 1. Power switch "off". 2. Frequency change (up/down, FM⟷AM⟷TV) Put out "H" when those of above two.
33	A IN	I	Not connected
34	B IN		
35 ≀ 37	KS1 ≀ KS3	O	Key scan signal output
38 ≀ 45	DGT0 ≀ DGT7	O	Digit signal output to FL display
46	P71	I	Serial data signal input
47 • 48 63	P70 • SEG15 ≀ SEG0	O	Segment signal output to FL display
64	VPP	I	FL motor power supply

■ SCHEMATIC DIAGRAM (Parts list on pages 17~20.)

Notes:

- S901, 902 : Preset channel switch.
  (S901: Up, S902: Down)
- S903 : Band select switch.
- S904 : Memory switch.
- S905, 906 : Tuning switch.
  (S905: Up, S906: Down)
- S907, 908 : Timer select Switch.
  (S907: Up, S908: Down)
- S909 : Timer set switch.
- S910 : Clock set switch.
- S911 : Timer setting confirmatin switch.
- S912 : Timer cancel switch.
- S913 : Power switch.

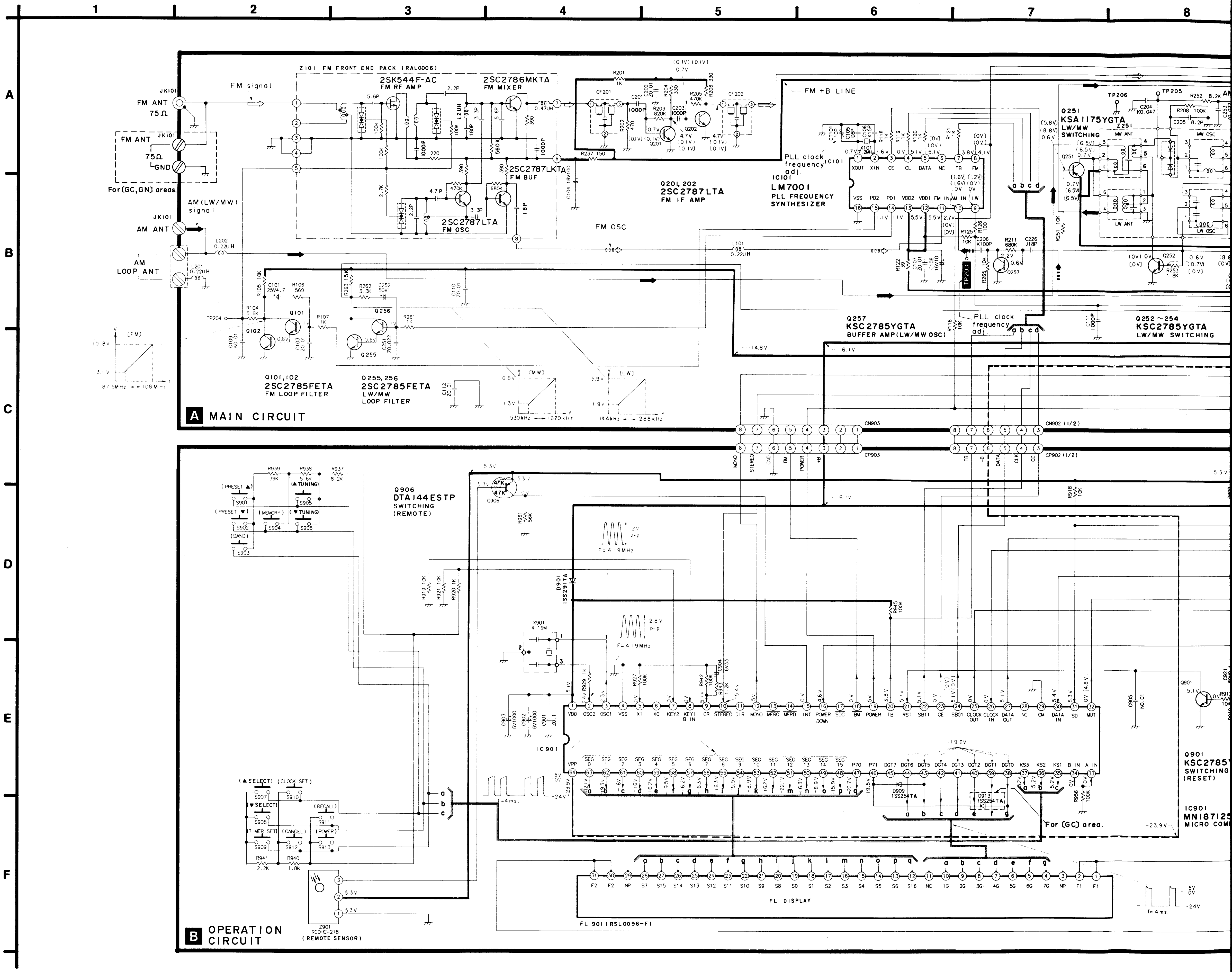
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  ( ): MW voltage, [ ]: LW voltage, ▭: MUTING voltage
- Important safety notice
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- **This schematic diagram may be modified at any time with the development of new technology.**

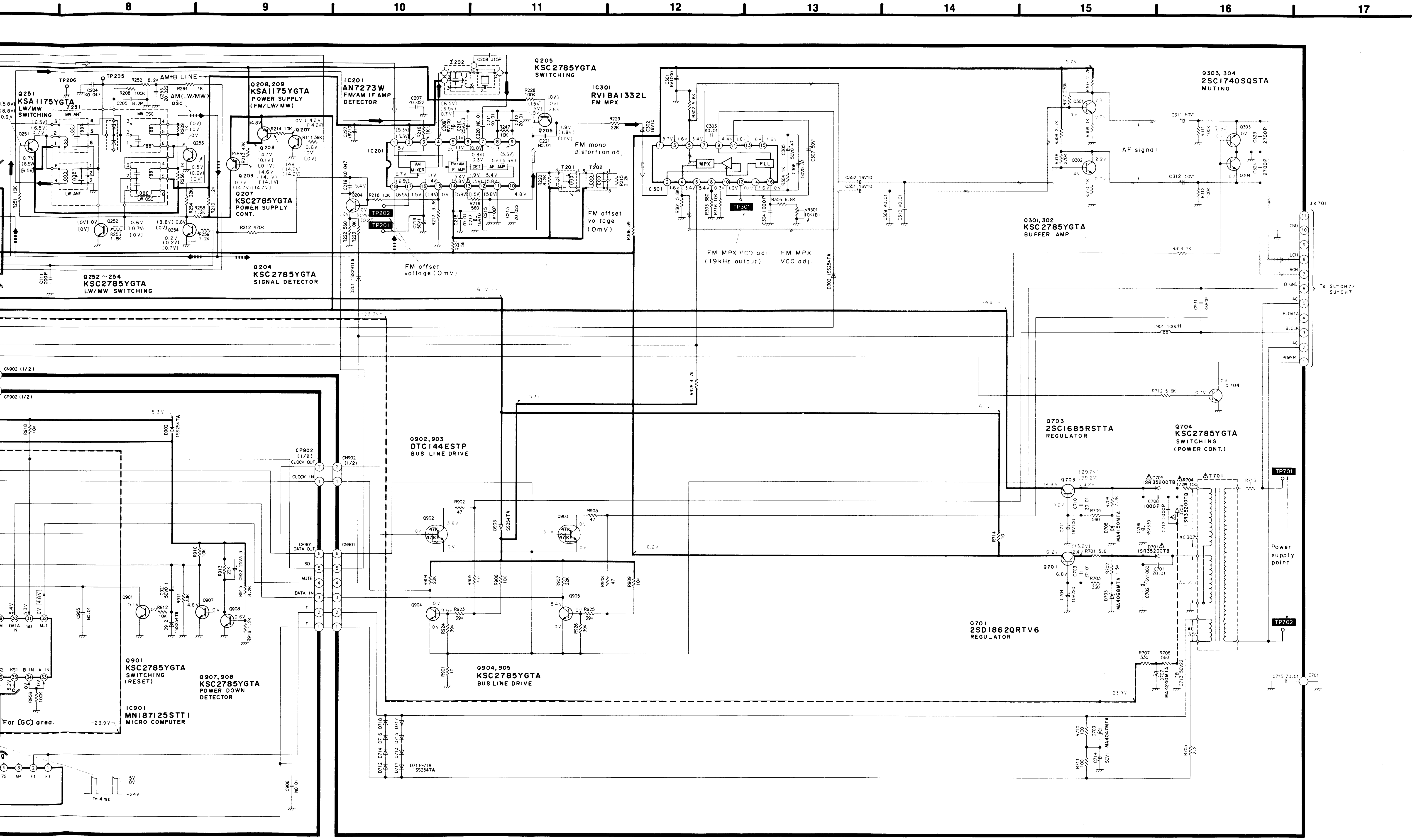
——— Positive voltage lines	‒ ‒ ‒ Negative voltage lines
▫▫▫▫▷ FM OSC	⇒ FM signal
▪▪▪▪▶ AM OSC	➡ AM signal
	░░ AF signal lines

・Caution!

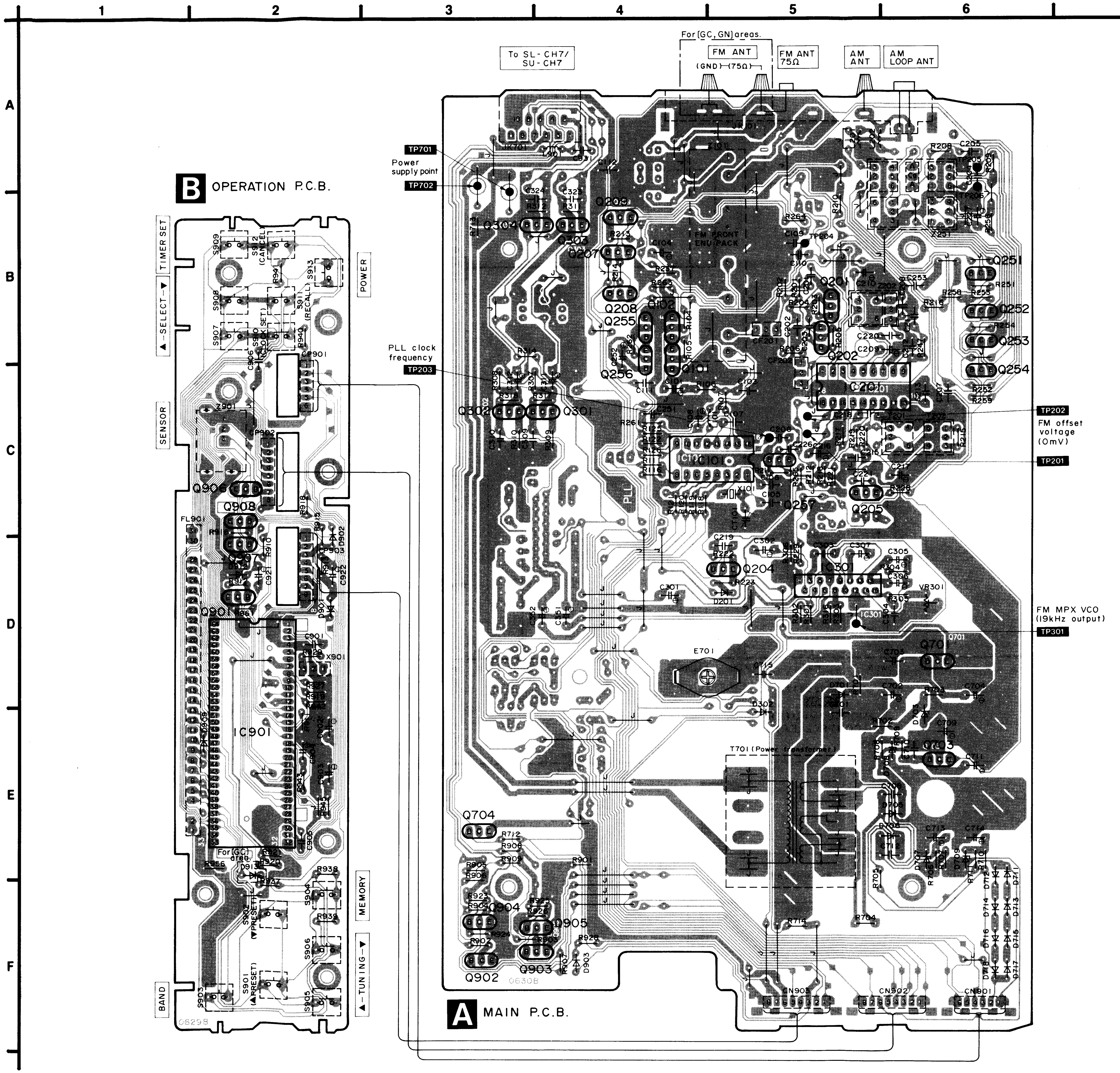
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum coil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

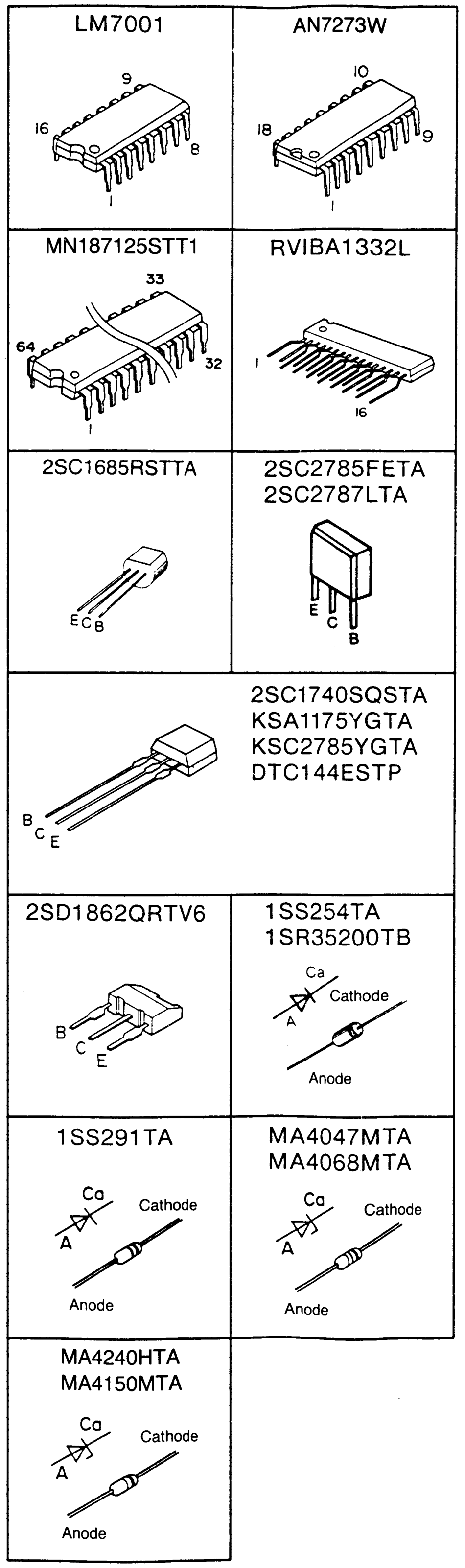

1
2
3
4
5
6
7
8
A
B
C
D
E
F
A MAIN CIRCUIT
B OPERATION CIRCUIT
Z101 FM FRONT END PACK (RAL0006)
2SK544F-AC FM RF AMP
2SC2786MKTA FM MIXER
2SC2787LKTA FM BUF
2SC2787LTA FM OSC
JK101 FM ANT 75Ω
FM ANT 75Ω GND
For [GC, GN] areas.
AM (LW/MW) signal
JK101 AM ANT
AM LOOP ANT
FM signal
FM OSC
FM +B LINE
Q201, 202 2SC2787LTA FM IF AMP
IC101 LM7001 PLL FREQUENCY SYNTHESIZER
PLL clock frequency adj.
Q251 KSA1175YGTA LW/MW SWITCHING
Z251
MW ANT
LW ANT
MW OSC
LW OSC
Q257 KSC2785YGTA BUFFER AMP (LW/MW OSC)
Q252~254 KSC2785YGTA LW/MW SWITCHING
Q101, 102 2SC2785FETA FM LOOP FILTER
Q255, 256 2SC2785FETA LW/MW LOOP FILTER
87.5MHz ~ 108MHz
530kHz ~ 1620kHz
144kHz ~ 288kHz
CN903
CN902 (1/2)
CP903
CP902 (1/2)
MONO STEREO GND BM POWER +B
TB +B DATA CLK CE
Q906 DTA144ESTP SWITCHING (REMOTE)
PRESET ▲ S901
PRESET ▼ S902
MEMORY S904
▲TUNING S905
▼TUNING S906
BAND S903
▲SELECT S907
CLOCK SET S910
▼SELECT S908
RECALL S911
TIMER SET S909
CANCEL S912
POWER S913
X901 4.19M
F=4.19MHz
IC901
Q901 KSC2785 SWITCHING (RESET)
IC901 MN187125 MICRO COM
For [GC] area.
FL901 (RSL0096-F)
FL DISPLAY
Z901 RCDHC-278 (REMOTE SENSOR)
T=4ms.


8
9
10
11
12
13
14
15
16
17
Q251
KSA1175YGTA
LW/MW SWITCHING
Z251
MW ANT
LW ANT
MW OSC
LW OSC
TP205
TP206
AM+B LINE
AM(LW/MW) OSC
Q208,209
KSA1175YGTA
POWER SUPPLY (FM/LW/MW)
Q207
KSC2785YGTA
POWER SUPPLY CONT.
Q252~254
KSC2785YGTA
LW/MW SWITCHING
Q204
KSC2785YGTA
SIGNAL DETECTOR
IC201
AN7273W
FM/AM IF AMP DETECTOR
AM MIXER
FM/AM IF AMP
DET
AF AMP
TP202
TP201
FM offset voltage (OmV)
Z202
Q205
KSC2785YGTA
SWITCHING
FM mono distortion adj.
T201
T202
FM offset voltage (OmV)
IC301
RVIBA1332L
FM MPX
MPX
PLL
TP301
FM MPX VCO adj. (19kHz output)
FM MPX VCO adj
Q303, 304
2SC1740SQSTA
MUTING
AF signal
Q301,302
KSC2785YGTA
BUFFER AMP
JK701
GND
LCH
RCH
B.GND
AC
B.DATA
B.CLK
AC
POWER
To SL-CH7/ SU-CH7
L901 100UH
Q704
KSC2785YGTA
SWITCHING (POWER CONT.)
Q703
2SC1685RSTTA
REGULATOR
Q701
2SD1862QRTV6
REGULATOR
T701
TP701
TP702
Power supply point
E701
Q902,903
DTC144ESTP
BUS LINE DRIVE
Q904,905
KSC2785YGTA
BUS LINE DRIVE
CP902 (1/2)
CN902 (1/2)
CLOCK OUT
CLOCK IN
CP901
CN901
DATA OUT
SD
MUTE
DATA IN
F
F
Q901
KSC2785YGTA
SWITCHING (RESET)
Q907,908
KSC2785YGTA
POWER DOWN DETECTOR
IC901
MN187125STT1
MICRO COMPUTER
For (GC) area.
D711~718
1SS254TA
T= 4ms.
5V
0V
-24V

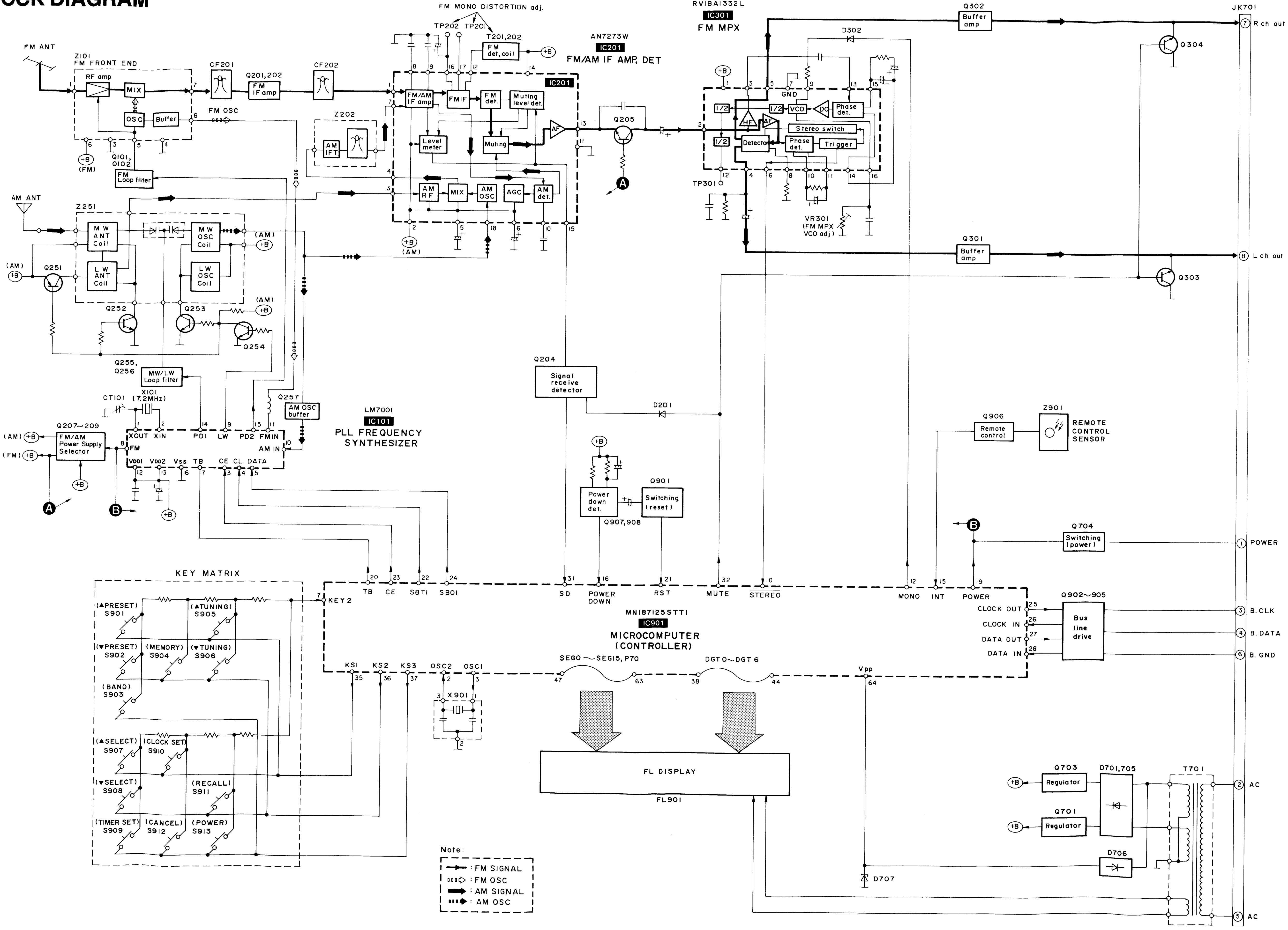
■ PRINTED CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
F
To SL-CH7/ SU-CH7
For [GC, GN] areas.
FM ANT
(GND) (75Ω)
FM ANT 75Ω
AM ANT
AM LOOP ANT
TP701
Power supply point
TP702
B OPERATION P.C.B.
TIMER SET
▲-SELECT-▼
POWER
SENSOR
MEMORY
▲-TUNING-▼
BAND
S909
S912 (CANCEL)
S908
S911 (RECALL)
S913
S907
S910 (SET)
CP901
Z901
CP902
Q906
Q908
FL901
Q907
Q901
IC901
X901
S904
S902 (▼PRESET)
S906
S903
S901 (▲RESET)
S905
For [GC]
PLL clock frequency
TP203
Q304
Q303
Q209
Q207
Q208
Q255
Q256
Q302
Q301
Q101
Q102
FM FRONT END PACK
IC101
PLL
X101
Q201
Q202
IC201
Q203
Q205
Q204
IC301
VR301
D201
E701
T701 (Power transformer)
Q251
Q252
Q253
Q254
TP202
FM offset voltage (0mV)
TP201
FM MPX VCO (19kHz output)
TP301
Q701
Q703
Q704
Q904
Q905
Q902
Q903
CN903
CN902
CN901
A MAIN P.C.B.

●Terminal guide of IC's transistors and diodes


LM7001
16
9
8
1
AN7273W
18
10
9
1
MN187125STT1
64
33
32
1
RVIBA1332L
1
16
2SC1685RSTTA
E C B
2SC2785FETA
2SC2787LTA
E C B
2SC1740SQSTA
KSA1175YGTA
KSC2785YGTA
DTC144ESTP
B C E
2SD1862QRTV6
B C E
1SS254TA
1SR35200TB
Ca
Cathode
A
Anode
1SS291TA
Ca
Cathode
A
Anode
MA4047MTA
MA4068MTA
Ca
Cathode
A
Anode
MA4240HTA
MA4150MTA
Ca
Cathode
A
Anode

■ BLOCK DIAGRAM


FM MONO DISTORTION adj.
TP202 TP201
T201,202
FM det. coil
AN7273W
IC201
FM/AM IF AMP, DET
RVIBA1332L
IC301
FM MPX
Q302
Buffer amp
JK701
7 R ch out
D302
Q304
FM ANT
Z101
FM FRONT END
RF amp
MIX
OSC
Buffer
FM OSC
CF201
Q201,202
FM IF amp
CF202
Z202
AM IFT
FM/AM IF amp
FMIF
FM det.
Muting level det.
Level meter
Muting
AF
AM RF
MIX
AM OSC
AGC
AM det.
Q205
Q101, Q102
(FM)
FM Loop filter
AM ANT
Z251
MW ANT Coil
LW ANT Coil
MW OSC Coil
LW OSC Coil
(AM)
Q251
Q252
Q253
Q254
Q255, Q256
MW/LW Loop filter
GND
1/2
HF
AF
VCO
DC
Phase det.
Stereo switch
Detector
Trigger
TP301
VR301 (FM MPX VCO adj)
Q301
Buffer amp
8 L ch out
Q303
Q204
Signal receive detector
D201
X101 (7.2MHz)
CT101
Q257
AM OSC buffer
LM7001
IC101
PLL FREQUENCY SYNTHESIZER
Q207~209
FM/AM Power Supply Selector
(AM)
(FM)
XOUT XIN PDI LW PD2 FMIN
AM IN
FM
VDD1 VDD2 Vss TB CE CL DATA
Power down det.
Q901
Switching (reset)
Q907,908
Q906
Remote control
Z901
REMOTE CONTROL SENSOR
Q704
Switching (power)
1 POWER
KEY MATRIX
(▲PRESET) S901
(▲TUNING) S905
(▼PRESET) S902
(MEMORY) S904
(▼TUNING) S906
(BAND) S903
(▲SELECT) S907
(CLOCK SET) S910
(▼SELECT) S908
(RECALL) S911
(TIMER SET) S909
(CANCEL) S912
(POWER) S913
KEY2
TB CE SBTI SBOI
SD
POWER DOWN
RST
MUTE
STEREO
MONO
INT
POWER
MN187125STTI
IC901
MICROCOMPUTER (CONTROLLER)
CLOCK OUT
CLOCK IN
DATA OUT
DATA IN
Q902~905
Bus line drive
3 B.CLK
4 B.DATA
6 B.GND
KS1 KS2 KS3 OSC2 OSC1
X901
SEG0 ~ SEG15, P70
DGT0 ~ DGT6
Vpp
FL DISPLAY
FL901
Q703
Regulator
D701,705
T701
Q701
Regulator
D706
D707
2 AC
5 AC
Note:
: FM SIGNAL
: FM OSC
: AM SIGNAL
: AM OSC

■ REPLACEMENT PARTS LIST

Notes : • Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
• The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	LM7001	I. C, PLL FREQENCY	
IC201	AN7273W	I. C, FM/AM IF AMP. DET	
IC301	RVIBA1332L	I. C, FM MPX	
IC901	MN187125STT1	I. C, MICRO COMPUTER	
		TRANSISTOR(S)	
Q101, 102	2SC2785FE	TRANSISTOR	
Q201, 202	2SC2787L	TRANSISTOR	
Q204, 205	KSC2785YGTA	TRANSISTOR	
Q207	KSC2785YGTA	TRANSISTOR	
Q208, 209	KSA1175YGTA	TRANSISTOR	
Q251	KSA1175YGTA	TRANSISTOR	
Q252-254	KSC2785YGTA	TRANSISTOR	
Q255, 256	2SC2785FE	TRANSISTOR	
Q257	KSC2785YGTA	TRANSISTOR	
Q301, 302	KSC2785YGTA	TRANSISTOR	
Q303, 304	2SC1740SQ	TRANSISTOR	
Q701	2SD1862QRTV6	TRANSISTOR	
Q703	2SC1685RSTTA	TRANSISTOR	
Q704	KSC2785YGTA	TRANSISTOR	
Q901	KSC2785YGTA	TRANSISTOR	
Q902, 903	DTC144EKT96	TRANSISTOR	
Q904, 905	KSC2785YGTA	TRANSISTOR	
Q906	DTA144ESTP	TRANSISTOR	
Q907, 908	KSC2785YGTA	TRANSISTOR	
		DIODE(S)	
D201	1SS291TA	DIODE	
D302	1SS254TA	DIODE	
D701	1SR35200TB	DIODE	⚠
D703	MA4068M	DIODE	
D705, 706	1SR35200TB	DIODE	⚠
D707	MA4240H	DIODE	
D708	MA4150M	DIODE	
D709	MA4047MTA	DIODE	
D711-718	1SS254TA	DIODE	
D901	1SS291TA	DIODE	
D902, 903	1SS254TA	DIODE	
D909	1SS254TA	DIODE	
D912	1SS254TA	DIODE	
D913	1SS254TA	DIODE	(GC)

Ref. No.	Part No.	Part Name & Description	Remarks
		VARIABLE RESISTOR(S)	
VR301	EVNDXAA00B14	V. R, FM MPX VCO ADJ.	
		COMPONENT COMBINATION(S)	
Z101	RAL0006	COMPONENT COMBINATION	
Z202	RLI2Z003M-T	COMPONENT COMBINATION	
Z251	RLA6Z002M-T	COMPONENT COMBINATION	
Z901	RCDHC-278	REMOTE SENSOR	
		COIL(S)	
L101	ELEXTR22MA9	COIL	
L201, 202	ELESNR22MA	COIL	
L901	ELEXT101KA9	COIL	
		TRANSFORMER(S)	
T201	RLI4B002M-Z	TRANSFORMER	
T202	RLI4B003M-Z	TRANSFORMER	
T701	RFKCTCH7N-K	POWER TRANSFORMER	⚠
		FILTER(S)	
CF201, 202	RLFFETWNA01L	CERAMIC FILTER	
		OSCILLATOR(S)	
X101	SVQ49U722-S	OSCILLATOR	
X901	EF0GC4194T4	OSCILLATOR	
		DISPLAY	
FL901	RSL0096-F	DISPLAY	
		SWITCH(ES)	
S901	EVQ21405R	SW, PRESET UP	
S902	EVQ21405R	SW, PRESET DOWN	
S903	EVQ21405R	SW, BAND	
S904	EVQ21405R	SW, MEMORY	
S905	EVQ21405R	SW, TUNING UP	
S906	EVQ21405R	SW, TUNING DOWN	
S907	EVQ21405R	SW, SELECT UP	
S908	EVQ21405R	SW, SELECT DOWN	
S909	EVQ21405R	SW, TIMER SET	

Ref. No.	Part No.	Part Name & Description	Remarks
S910	EVQ21405R	SW, CLOCK SET	
S911	EVQ21405R	SW, RECALL	
S912	EVQ21405R	SW, CANSEL	
S913	EVQ21405R	SW, POWER	
		CONNECTOR(S)	
CN901	RJU003K006M1	SOCKET(6P)	
CN902, 903	RJU003K008M1	SOCKET(8P)	
CP901	RJT003K006M1	CONNECTOR(6P)	
CP902, 903	RJT003K008M1	CONNECTOR(8P)	
		VARIABLE CAPACITOR	
CT101	RCV10AF1T-S	TRIMMER CAPACITOR	
		JACK(S)	
JK101	RJH4202M	ANT. TERMINAL BOARD	(E)
JK101	RJH4405-1M	ANT. TERMINAL BOARD	(GC, GN)
JK701	RJT055K011-1	CONTROL TERMINAL	

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

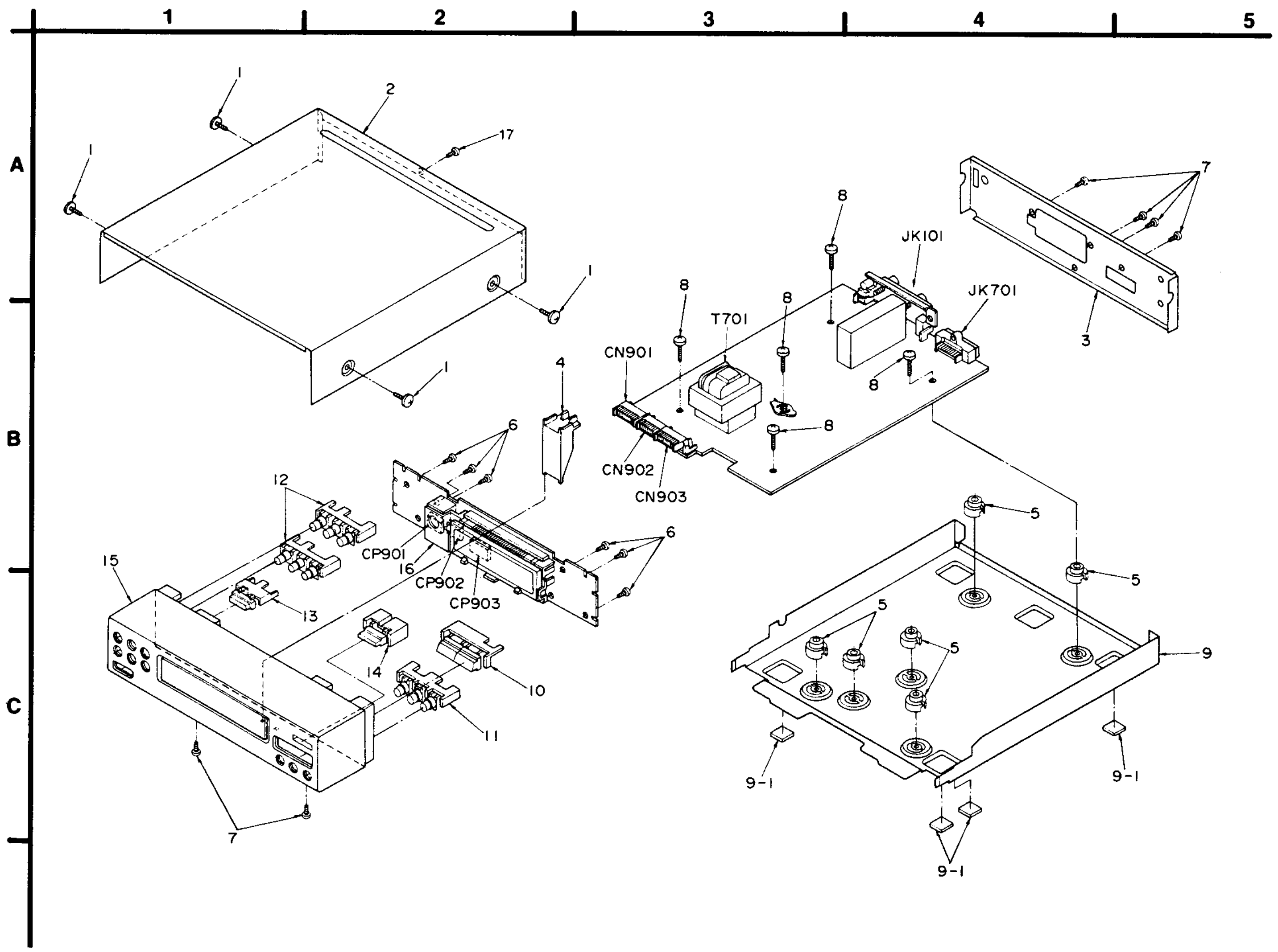
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R104	ERDS2TJ562	1/4W 5.6K
R105	ERDS2TJ103	1/4W 10K
R106	ERDS2TJ561	1/4W 560
R107	ERDS2TJ102	1/4W 1K
R111	ERDS2TJ393	1/4W 39K
R116	ERDS2TJ103	1/4W 10K
R118-121	ERDS2TJ102	1/4W 1K
R122	ERDS2TJ390	1/4W 39
R125	ERDS2TJ103	1/4W 10K
R126	ERDS2TJ101	1/4W 100
R201	ERDS2TJ102	1/4W 1K
R202	ERDS2TJ471	1/4W 470
R203	ERDS2TJ824	1/4W 820K
R204	ERDS2TJ331	1/4W 330
R205	ERDS2TJ474	1/4W 470K
R206	ERDS2TJ331	1/4W 330
R208	ERDS2TJ104	1/4W 100K
R209	ERDS2TJ102	1/4W 1K
R210	ERDS2TJ122	1/4W 1.2K
R211	ERDS2TJ684	1/4W 680K
R212	ERDS2TJ474	1/4W 470K
R213	ERDS2TJ473	1/4W 47K
R214	ERDS2TJ103	1/4W 10K
R215	ERDS2TJ222	1/4W 2.2K
R216	ERDS2TJ102	1/4W 1K
R217	ERDS2TJ332	1/4W 3.3K
R218	ERDS2TJ103	1/4W 10K
R219	ERDS2TJ561	1/4W 560
R220	ERDS2TJ822	1/4W 8.2K
R221	ERDS2TJ560T	1/4W 56
R222	ERDS2TJ561	1/4W 560
R223	ERDS2TJ103	1/4W 10K
R228	ERDS2TJ104	1/4W 100K
R229	ERDS2TJ223	1/4W 22K
R237	ERDS2TJ151	1/4W 150
R247	ERDS2TJ103	1/4W 10K
R251	ERDS2TJ103	1/4W 10K
R252	ERDS2TJ822	1/4W 8.2K
R253	ERDS2TJ182	1/4W 1.8K
R254	ERDS2TJ223	1/4W 22K
R256	ERDS2TJ102	1/4W 1K
R258, 259	ERDS2TJ122	1/4W 1.2K
R261	ERDS2TJ102	1/4W 1K
R262	ERDS2TJ332	1/4W 3.3K
R263	ERDS2TJ153	1/4W 15K
R264	ERDS2TJ102	1/4W 1K
R265	ERDS2TJ103	1/4W 10K
R301, 302	ERDS2TJ562	1/4W 5.6K
R303	ERDS2TJ681	1/4W 680
R304	ERDS2TJ102	1/4W 1K
R305	ERDS2TJ682T	1/4W 6.8K
R306	ERDS2TJ390	1/4W 39
R307, 308	ERDS2TJ272T	1/4W 2.7K
R309, 310	ERDS2TJ102	1/4W 1K
R311, 312	ERDS2TJ104	1/4W 100K
R314	ERDS2TJ102	1/4W 1K
R316	ERDS2TJ103	1/4W 10K
R317, 318	ERDS2TJ274	1/4W 270K
R701	ERDS2TJ5R6	1/4W 5.6
R702	ERDS2TJ152	1/4W 1.5K
R703	ERDS2TJ331	1/4W 330
R704	ERDS1FVJ151T	1/2W 150 ⚠
R705	ERDS2TJ2R2T	1/4W 2.2
R706	ERDS2TJ561	1/4W 560
R707	ERDS2TJ331	1/4W 330
R708	ERDS2TJ272T	1/4W 2.7K
R709	ERDS2TJ561	1/4W 560
R710, 711	ERDS2TJ101	1/4W 100
R712	ERDS2TJ562	1/4W 5.6K
R713	ERDS2TJ1R0	1/4W 1.0
R714	ERDS2TJ100	1/4W 10
R901	ERDS2TJ100	1/4W 10
R902, 903	ERDS2TJ470	1/4W 47
R904	ERDS2TJ223	1/4W 22K
R905	ERDS2TJ470	1/4W 47
R906	ERDS2TJ103	1/4W 10K
R907	ERDS2TJ223	1/4W 22K
R908	ERDS2TJ470	1/4W 47
R909, 910	ERDS2TJ103	1/4W 10K
R911	ERDS2TJ333	1/4W 33K
R912	ERDS2TJ103	1/4W 10K
R913	ERDS2TJ223	1/4W 22K
R915	ERDS2TJ822	1/4W 8.2K
R916	ERDS2TJ122	1/4W 1.2K
R918, 919	ERDS2TJ103	1/4W 10K
R920	ERDS2TJ102	1/4W 1K
R921	ERDS2TJ103	1/4W 10K
R923-926	ERDS2TJ393	1/4W 39K
R927	ERDS2TJ104	1/4W 100K
R928	ERDS2TJ472	1/4W 4.7K
R929	ERDS2TJ102	1/4W 1K
R937	ERDS2TJ822	1/4W 8.2K
R938	ERDS2TJ562	1/4W 5.6K
R939	ERDS2TJ393	1/4W 39K
R940	ERDS2TJ182	1/4W 1.8K
R941	ERDS2TJ222	1/4W 2.2K
R942	ERDS2TJ104	1/4W 100K
R943	ERDS2TJ122	1/4W 1.2K
R945	ERDS2TJ104	1/4W 100K
R956	ERDS2TJ104	1/4W 100K
R961	ERDS2TJ563	1/4W 56K
		CAPACITORS
C101	ECEA1EK4R7	25V 4.7U
C103	ECKR1H103ZF5	50V 0.01U
C104	ECEA1CU101	16V 100U
C105	ECCR1H080DC5	50V 8P
C106	ECCR1H150KC5	50V 15P
C107	ECKR1H103ZF5	50V 0.01U
C108	ECEA1CK100B	16V 10U
C109	ECBT1C103NS5	16V 0.01U
C110	ECKR1H103ZF5	50V 0.01U
C111	ECBT1H102KB5	50V 1000P
C112	ECKR1H103ZF5	50V 0.01U
C201	ECBT1H102KB5	50V 1000P
C202	ECKR1H103ZF5	50V 0.01U
C203	ECBT1H102KB5	50V 1000P
C204	ECFR1E473KR	25V 0.047U
C205	ECBT1H8R2KC5	50V 8.2P
C206	ECCR1H101K5	50V 100P
C207	ECKT1H223ZF	50V 0.022U
C208	ECBT1H150JC5	50V 15P
C209	ECEA0JU101B	6.3V 100U
C210	ECEA1EK3R3B	25V 3.3U
C211	ECFR1E103KR	25V 0.01U
C212	ECKR1H103ZF5	50V 0.01U
C213	ECKT1H223ZF	50V 0.022U
C215	ECCR1H101K5	50V 100P
C216	ECEA1HK010B	50V 1U
C217	ECEA1CK100B	16V 10U
C218	ECKR1H103ZF5	50V 0.01U
C219	ECFR1E473KR	25V 0.047U
C220, 221	ECBT1C103NS5	16V 0.01U
C226	ECBT1H180JC5	50V 18P
C227	ECEA1CK100B	16V 10U
C251	ECBT1E223ZF	25V 0.022U
C252	ECEA1HK010B	50V 1U
C253	ECBT1E223ZF	25V 0.022U
C301	ECEA0JU102	6.3V 1000U
C302	ECEA1CK100B	16V 10U
C303	ECFR1E103KR	25V 0.01U
C304	ECQG1H102KZT	50V 1000P
C305	ECEA1HKR47	50V 0.47U
C306	ECEA1HKR33	50V 0.33U
C307	ECEA1HK010B	50V 1U
C309, 310	ECFR1E103KR	25V 0.01U
C311, 312	ECEA1HK010B	50V 1U
C323, 324	ECFR1E272KR	25V 2700P
C351, 352	ECEA1CK100B	16V 10U
C701	ECKR1H103ZF5	50V 0.01U
C702	ECEA1CU102B	16V 1000U
C703	ECKR1H103ZF5	50V 0.01U
C704	ECEA1AU221	10V 220U
C708	ECKR2H102ZF5	500V 1000P
C709	ECEA1VU331B	35V 330U
C710	ECKR1H103ZF5	50V 0.01U
C711	ECEA1CU101	16V 100U
C712	ECKR2H102ZF5	500V 1000P
C713	ECEA1HU220	50V 22U
C714	ECEA1HK010B	50V 1U
C715	ECKR1H103ZF5	50V 0.01U
C901	ECFR1H104ZF	50V 0.1U
C902, 903	ECEA0JU102	6.3V 1000U
C904	ECEA0JK330	6.3V 33U
C905, 906	ECBT1C103NS5	16V 0.01U
C921	ECEA1HK0R1	50V 0.1U
C922	ECEA1EK3R3B	25V 3.3U
C931	ECBA1H681KB5	50V 680P

Ref. No.	Part No.	Values & Remarks
C306	ECEA1HKR33	50V 0.33U
C307	ECEA1HK010B	50V 1U
C309, 310	ECFR1E103KR	25V 0.01U
C311, 312	ECEA1HK010B	50V 1U
C323, 324	ECFR1E272KR	25V 2700P
C351, 352	ECEA1CK100B	16V 10U
C701	ECKR1H103ZF5	50V 0.01U
C702	ECEA1CU102B	16V 1000U
C703	ECKR1H103ZF5	50V 0.01U
C704	ECEA1AU221	10V 220U
C708	ECKR2H102ZF5	500V 1000P
C709	ECEA1VU331B	35V 330U
C710	ECKR1H103ZF5	50V 0.01U
C711	ECEA1CU101	16V 100U
C712	ECKR2H102ZF5	500V 1000P
C713	ECEA1HU220	50V 22U
C714	ECEA1HK010B	50V 1U
C715	ECKR1H103ZF5	50V 0.01U
C901	ECFR1H104ZF	50V 0.1U
C902, 903	ECEA0JU102	6.3V 1000U
C904	ECEA0JK330	6.3V 33U
C905, 906	ECBT1C103NS5	16V 0.01U
C921	ECEA1HK0R1	50V 0.1U
C922	ECEA1EK3R3B	25V 3.3U
C931	ECBA1H681KB5	50V 680P

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RHD30007	SCREW	
2	RKM0158-K	CABINET	
3	RGR0116A-C	REAR PANEL	(E)
3	RGR0116A-D1	REAR PANEL	(GC, GN)
4	RMR0427	HOLDER	
5	SHE170-2	SPACER	
6	XTBS26+8J	SCREW	
7	XTBS3+8JFZ1	SCREW	
8	XTB3+12JFZ	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
9	RFKJTCH7LE-K	CASSIS ASS'Y	
9-1	SHG1654	FOOT	
10	RGU0553-K	BUTTON, PRESET	
11	RGU0554-K	BUTTON, TUNING	
12	RGU0555-A	BUTTON, TIMER	
13	RGU0556-K	BUTTON, POWER	
14	RGU0557-K	BUTTON, BAND SELECT	
15	RFKGTCH7LE-K	FRONT PANEL ASS'Y	(E)
15	RFKGTCH7LGCK	FRONT PANEL ASS'Y	(GC, GN)
16	RMN0123	FL HOLDER	
17	XTB3+8JFZ	SCREW	

■ CABINET PARTS LOCATION



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ORDER NO. AD9104109A2

Service Manual

Simplified

LW/MW/FM Stereo Tuner

Tuner

ST-CH7L

Color

(K)	Black Type

- Please file and use this manual together with the service manual for model No. ST-CH7L Order No. AD9104083C8.
- This service manual indicates the main differences between; Original ST-CH7L (E) and ST-CH7L (EG).
- Refer to the Schematic Diagram, Block Diagram, Circuit Board and Wiring Connection Diagram of this Service Manual.

Area

Country Code	Area	Color
(EG)	F.R. Germany and Italy	(K)

System: SC-CH7

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

CHANGES

■ CHANGE IN REPLACEMENT PARTS LIST

Note: Mentioned in this parts list of cabinet parts are only those different from Model No. ST-CH7L (E); all other cabinet parts are the same as for ST-CH7L (E), and accessories are only those different from Model No. SU-CH7 (E) Order No. AD9104082C8; all other accessories are the same as for SU-CH7 (E).
For the electrical parts, see page 11 through 14 of this service manual for ST-CH7L (EG).

- **ST-CH7L (Page 21 of service manual.)/SU-CH7 (Page 36 of service manual.)**

Ref. No.	Change of Part No.		Part Name & Description	Remarks
	ST-CH7L (E)	**ST-CH7L (EG)**		
CABINET PARTS				
3	RGR0116A-C	**RGR0116A-E1**	REAR PANEL	
PACKING MATERIAL				
P1	RPG0925	**RPG1045**	PACKING CASE	SYSTEM
ACCESSORIES				
A1	RQF1125	**RQF1127**	INST. MANUAL ASS'Y	
A1–1	RFKSUCH7E-K	**RQT1035-D**	INSTRUCTIONS MANUAL	

System	Tuner	Amplifier	CD Player	Cassette Deck	Speakers
SC-CH7	ST-CH7L	SU-CH7	SL-CH7	RS-CH7	SB-CH7

Technics

■ MEASUREMENTS AND ADJUSTMENTS

FM ADJUSTMENT

Control positions and equipment used

- FM signal generator (FM-SG)
- Stereo modulator
- Distortion analyser
- DC electronic voltmeter (EVM)
- Frequency counter
- Choke coil (100 μH)
- Resistor (100 kΩ)

Note: For L321, L322, L324, Z321, Z251 (AM-ANT/OSC) and Z202 (AM-IFT), they are supplied as adjusted parts. So, do not turn the cores of the parts.
It is not necessary to adjust the AM circuit.

FM STEREO DISTORTION ADJUSTMENT

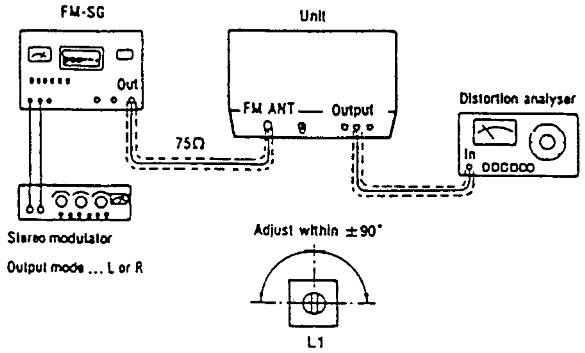
1. Test equipment connection is shown in figure.
2. Set the unit to "FM" mode.
3. Set the radio frequency display and signal generator to **100.10 MHz.**
4. Adjust L1 so that the distortion factor of L-CH is minimized.
5. Make sure that the distortion factors of L-CH and R-CH are nearly the same with each other to minimum.

Notes:

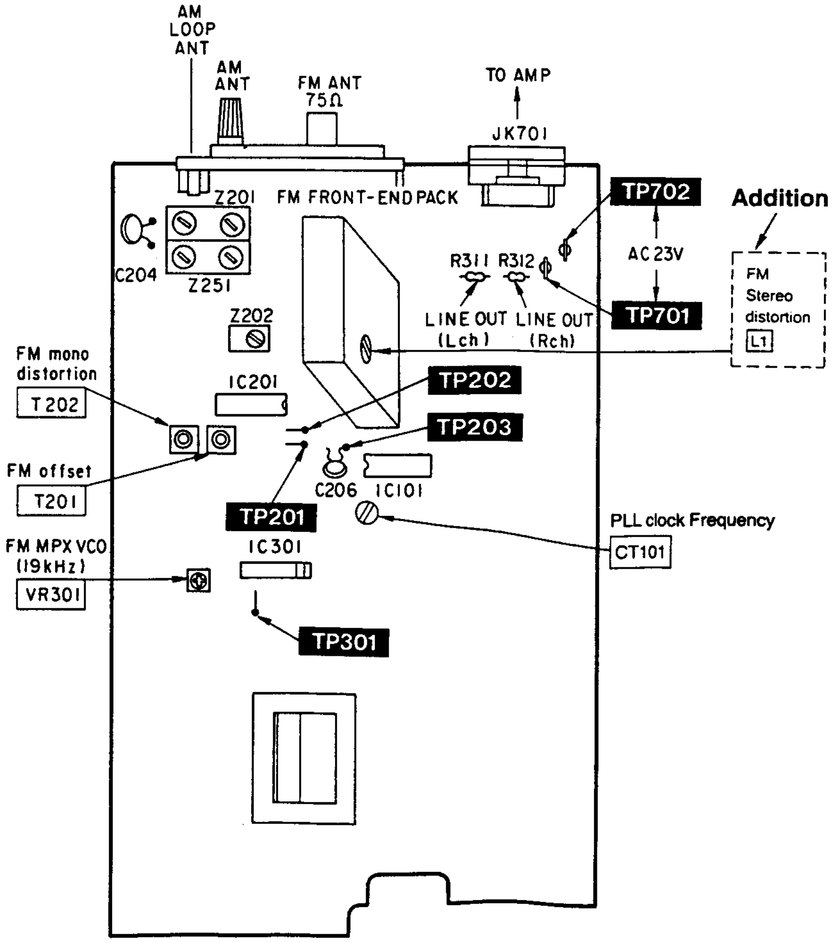
1. The adjusting screwdriver used should be made of resin.
2. L1 should be rotated no more 1/4 turn (90 deg.) on either side.

FM SIGNAL GENERATOR CONDITION

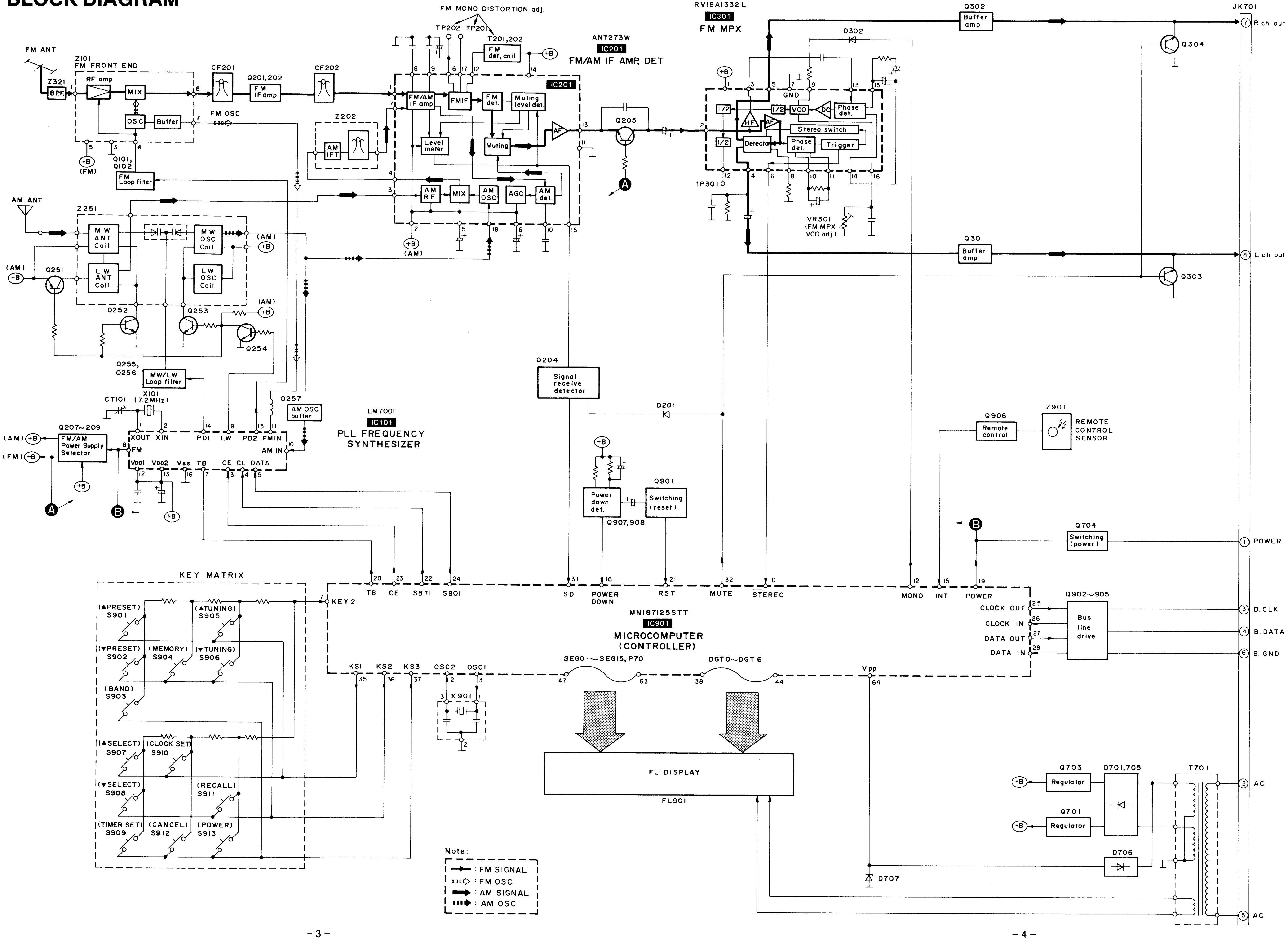
Modulation.............................Stereo "L" mode or "R" mode 45%, Pilot 10%
Modulation frequency...........1 kHz (Pilot 19 kHz)
Output level............................66 dB


FM-SG
Out
Unit
FM ANT
Output
75Ω
Distortion analyser
In
Stereo modulator
Output mode ... L or R
Adjust within ±90°
L1

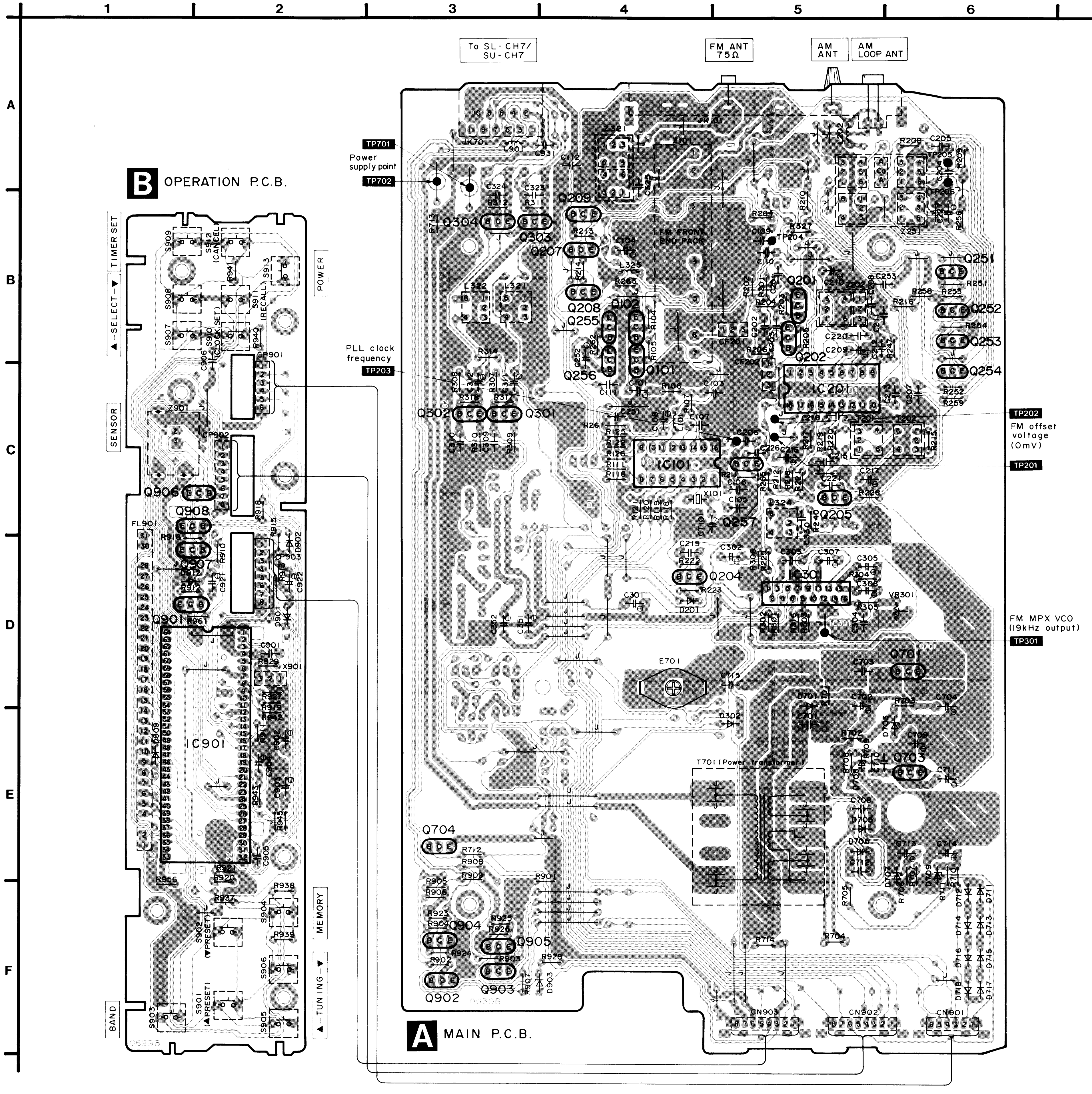
•ADJUSTMENT POINTS


AM LOOP ANT
AM ANT
FM ANT 75Ω
TO AMP
JK701
Z201
FM FRONT-END PACK
TP702
Addition
C204
Z251
R311
R312
AC 23V
FM Stereo distortion
L1
TP701
LINE OUT (Lch)
LINE OUT (Rch)
Z202
FM mono distortion
T202
IC201
TP202
TP203
FM offset
T201
C206
IC101
TP201
PLL clock Frequency
CT101
FM MPX VCO (19kHz)
VR301
IC301
TP301

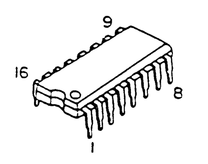
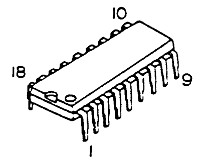
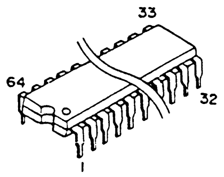
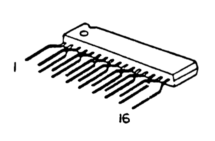
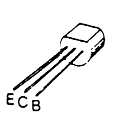
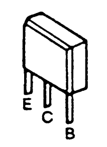
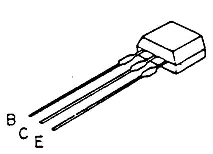
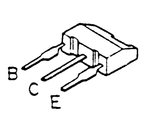
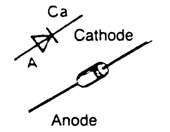
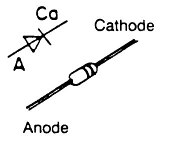
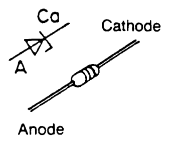
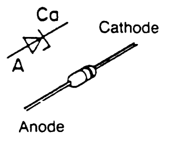
■ BLOCK DIAGRAM


FM ANT
Z321
B.P.F.
Z101
FM FRONT END
RF amp
MIX
OSC
Buffer
+B (FM)
Q101, Q102
FM Loop filter
CF201
Q201,202
FM IF amp
CF202
FM OSC
Z202
AM IFT
FM MONO DISTORTION adj.
TP202 TP201
T201,202
FM det. coil
AN7273W
IC201
FM/AM IF AMP, DET
FM/AM IF amp
FMIF
FM det.
Muting level det.
Level meter
Muting
AF
AM RF
MIX
AM OSC
AGC
AM det.
+B (AM)
Q205
RVIBA1332L
IC301
FM MPX
D302
GND
1/2
HF
AF
1/2
VCO
DC
Phase det.
Stereo switch
Detector
Phase det.
Trigger
TP301
VR301 (FM MPX VCO adj.)
Q302
Buffer amp
Q304
Q301
Buffer amp
Q303
JK701
R ch out
L ch out
AM ANT
Z251
MW ANT Coil
LW ANT Coil
MW OSC Coil
LW OSC Coil
(AM) +B
Q251
Q252
Q253
Q254
Q255, Q256
MW/LW Loop filter
CT101
X101 (7.2MHz)
Q257
AM OSC buffer
Q207~209
FM/AM Power Supply Selector
(AM) +B
(FM) +B
LM7001
IC101
PLL FREQUENCY SYNTHESIZER
XOUT XIN PD1 LW PD2 FMIN
AM IN
FM
VDD1 VDD2 Vss TB CE CL DATA
Q204
Signal receive detector
D201
Q901
Switching (reset)
Power down det.
Q907,908
Q906
Remote control
Z901
REMOTE CONTROL SENSOR
Q704
Switching (power)
POWER
KEY MATRIX
(▲PRESET) S901
(▲TUNING) S905
(▼PRESET) S902
(MEMORY) S904
(▼TUNING) S906
(BAND) S903
(▲SELECT) S907
(CLOCK SET) S910
(▼SELECT) S908
(RECALL) S911
(TIMER SET) S909
(CANCEL) S912
(POWER) S913
KEY2
TB CE SBTI SBOI
SD
POWER DOWN
RST
MUTE
STEREO
MONO
INT
POWER
MN187125STTI
IC901
MICROCOMPUTER (CONTROLLER)
CLOCK OUT
CLOCK IN
DATA OUT
DATA IN
Q902~905
Bus line drive
B.CLK
B.DATA
B.GND
KS1 KS2 KS3 OSC2 OSC1
X901
SEG0 ~ SEG15, P70
DGT0 ~ DGT6
Vpp
FL DISPLAY
FL901
Q703
Regulator
Q701
Regulator
D701,705
D706
D707
T701
AC
AC
Note:
: FM SIGNAL
: FM OSC
: AM SIGNAL
: AM OSC

■ PRINTED CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM (Parts list on pages 11~14.)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
B OPERATION P.C.B.
A MAIN P.C.B.
To SL-CH7/ SU-CH7
FM ANT 75Ω
AM ANT
AM LOOP ANT
TP701
Power supply point
TP702
PLL clock frequency
TP203
TP202
FM offset voltage (0mV)
TP201
FM MPX VCO (19kHz output)
TP301
FM FRONT END PACK
T701 (Power transformer)
IC101
IC201
IC301
IC901
E701
CN903
CN902
CN901
TIMER SET
▲-SELECT-▼
SENSOR
POWER
MEMORY
▲-TUNING-▼
BAND
S912 (CANCEL)
S911 (RECALL)
S910 (CLOCK SET)
S902 (▼PRESET)
S901 (▲PRESET)

•Terminal guide of IC's transistors and diodes

LM7001 	AN7273W 
MN187125STT1 	RVIBA1332L 
2SC1685RSTTA 	2SC2785FETA 2SC2787LTA 
	2SC1740SQSTA KSA1175YGTA KSC2785YGTA DTC144ESTP
2SD1862QRTV6 	1SS254TA 1SR35200TB 
1SS291TA 	MA4047MTA MA4068MTA 
MA4240HTA MA4150MTA 	

16
9
1
8
10
18
1
9
33
64
1
32
1
16
E C B
E C B
B C E
B C E
Ca Cathode A Anode

■ SCHEMATIC DIAGRAM (Parts list on pages 11~14.)

Notes:

- ●S901, 902 : Preset channel switch. (S901: Up, S902: Down)
- ●S903 : Band select switch.
- ●S904 : Memory switch.
- ●S905, 906 : Tuning switch. (S905: Up, S906: Down)
- ●S907, 908 : Timer select Switch. (S907: Up, S908: Down)
- ●S909 : Timer set switch.
- ●S910 : Clock set switch.
- ●S911 : Timer setting confirmatin switch.
- ●S912 : Timer cancel switch.
- ●S913 : Power switch.

●Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

( ): MW voltage, [ ]: LW voltage, ▭: MUTING voltage

●Important safety notice

Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

●This schematic diagram may be modified at any time with the development of new technology.

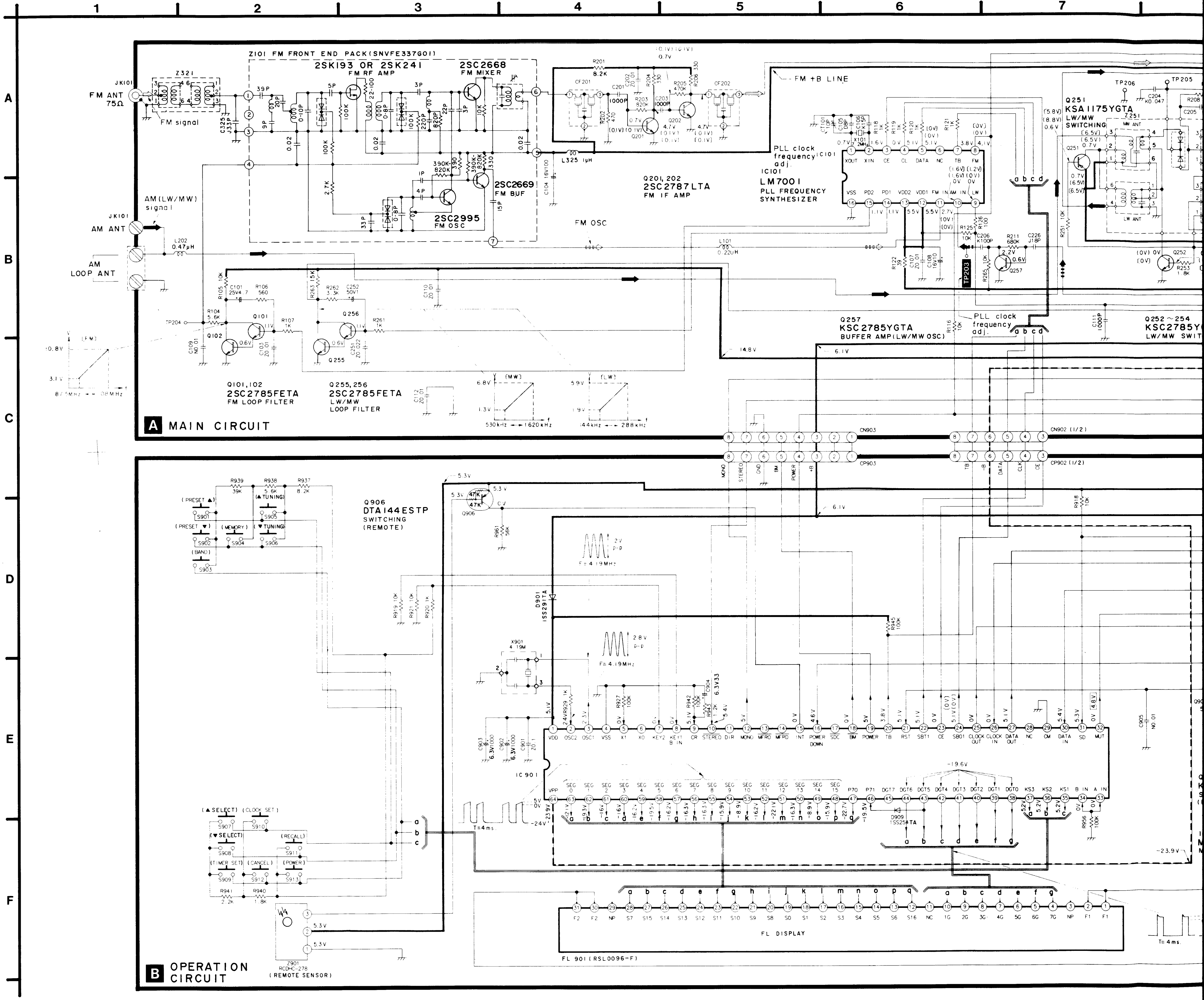
——	Positive voltage lines	- - - -	Negative voltage lines
▭▭▭▷	FM OSC	⇨	FM signal
■■■■▶	AM OSC	➡	AM signal
		······	AF signal lines

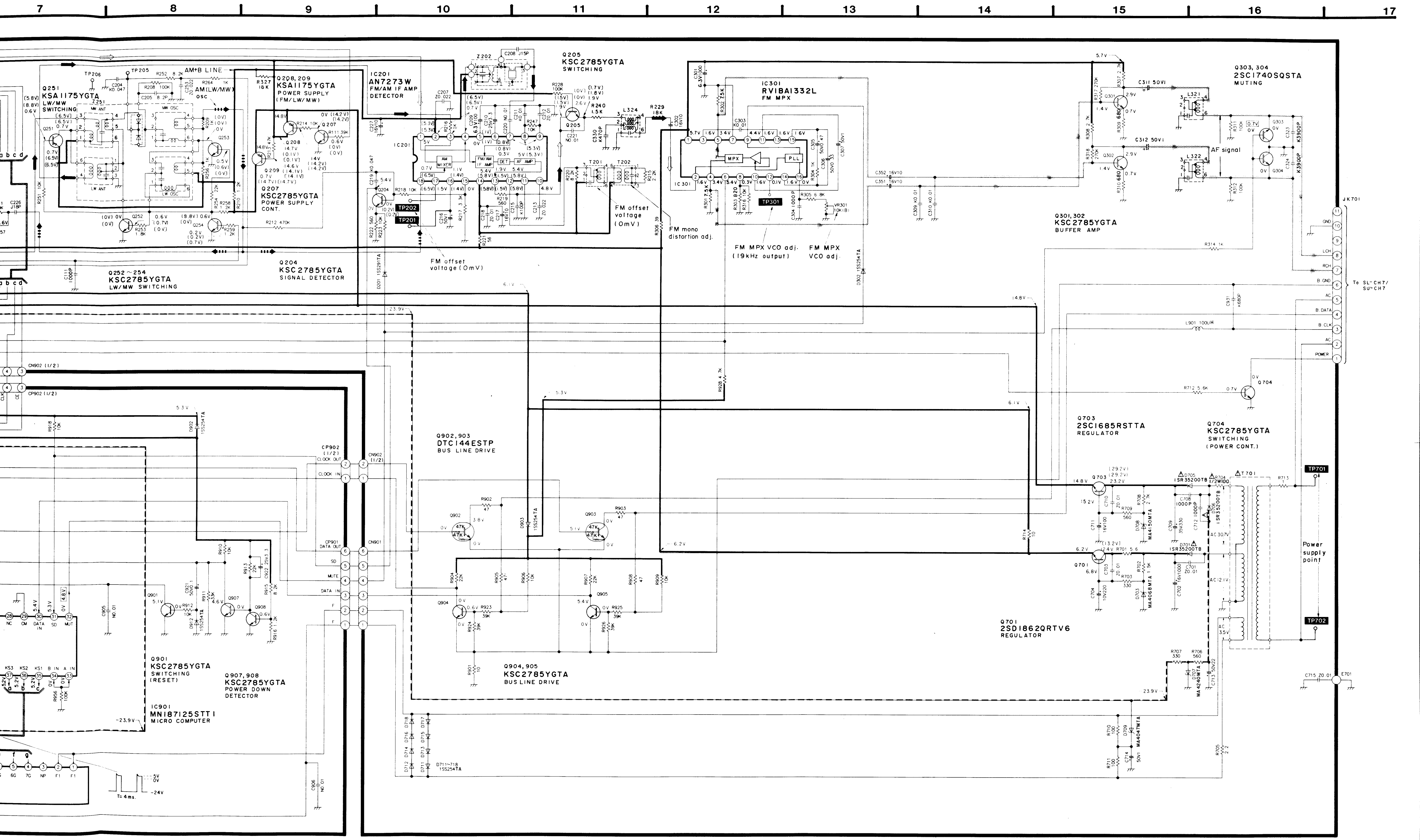
•Caution!

IC and LSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.

- •Cover the parts boxes made of plastics with aluminum coil.
- •Ground the soldering iron.
- •Put a conductive mat on the work table.
- •Do not touch the legs of IC or LSI with the fingers directly.


1
2
3
4
5
6
7
A
B
C
D
E
F
Z101 FM FRONT END PACK (SNVFE337G01)
2SK193 OR 2SK241
FM RF AMP
2SC2668
FM MIXER
2SC2669
FM BUF
2SC2995
FM OSC
JK101
FM ANT 75Ω
FM signal
AM (LW/MW) signal
JK101
AM ANT
AM LOOP ANT
L202 0.47μH
Q201, 202
2SC2787LTA
FM IF AMP
FM OSC
FM +B LINE
PLL clock frequency adj.
IC101
LM7001
PLL FREQUENCY SYNTHESIZER
Q251
KSA1175YGTA
LW/MW SWITCHING
Q257
KSC2785YGTA
BUFFER AMP (LW/MW OSC)
PLL clock frequency adj.
Q252~254
KSC2785Y
LW/MW SWIT
Q101, 102
2SC2785FETA
FM LOOP FILTER
Q255, 256
2SC2785FETA
LW/MW LOOP FILTER
(FM)
(MW)
(LW)
530kHz — 1620kHz
144kHz — 288kHz
A MAIN CIRCUIT
CN903
CP903
CN902 (1/2)
CP902 (1/2)
MONO
STEREO
GND
BM
POWER
+B
TB
DATA
CLK
CE
Q906
DTA144ESTP
SWITCHING (REMOTE)
(PRESET ▲)
(PRESET ▼)
(MEMORY)
(▲TUNING)
(▼TUNING)
(BAND)
S901
S902
S903
S904
S905
S906
F=4.19MHz
X901 4.19M
D901 1SS291TA
IC901
VDD
OSC2
OSC1
VSS
X1
X0
KEY2
KEY1 B IN
CR
STEREO DIR
MONO
MFRO
INT
POWER DOWN
SDC
BM
POWER
TB
RST
SBT1
CE
SB01
CLOCK OUT
CLOCK IN
DATA OUT
NC
CM
DATA IN
SD
MUT
VPP
SEG 0
SEG 1
SEG 2
SEG 3
SEG 4
SEG 5
SEG 6
SEG 7
SEG 8
SEG 9
SEG 10
SEG 11
SEG 12
SEG 13
SEG 14
SEG 15
P70
P71
DGT7
DGT6
DGT5
DGT4
DGT3
DGT2
DGT1
DGT0
KS3
KS2
KS1
B IN
A IN
D909 1SS254TA
T=4ms
(▲SELECT)
(▼SELECT)
(CLOCK SET)
(RECALL)
(TIMER SET)
(CANCEL)
(POWER)
S907
S908
S909
S910
S911
S912
S913
FL DISPLAY
FL 901 (RSL0096-F)
Z901 RCDHC-278 (REMOTE SENSOR)
B OPERATION CIRCUIT


7
8
9
10
11
12
13
14
15
16
17
Q251
KSA1175YGTA
LW/MW
SWITCHING
Z251
MW ANT
LW ANT
MW OSC
LW OSC
TP206
TP205
AM+B LINE
AM(LW/MW)
OSC
Q208, 209
KSA1175YGTA
POWER SUPPLY
(FM/LW/MW)
Q207
KSC2785YGTA
POWER SUPPLY
CONT.
Q252～254
KSC2785YGTA
LW/MW SWITCHING
Q204
KSC2785YGTA
SIGNAL DETECTOR
IC201
AN7273W
FM/AM IF AMP
DETECTOR
Z202
AM MIXER
FM/AM IF AMP
DET
AF AMP
TP202
TP201
FM offset
voltage (OmV)
Q205
KSC2785YGTA
SWITCHING
L324
T201
T202
FM offset
voltage
(OmV)
FM mono
distortion adj.
IC301
RVIBA1332L
FM MPX
MPX
PLL
TP301
FM MPX VCO adj.
(19kHz output)
FM MPX
VCO adj.
VR301
Q303, 304
2SC1740SQSTA
MUTING
L321
L322
AF signal
Q301, 302
KSC2785YGTA
BUFFER AMP
JK701
GND
LCH
RCH
B.GND
AC
B.DATA
B.CLK
POWER
To SL-CH7/
SU-CH7
L901 100μH
Q704
CN902 (1/2)
CP902 (1/2)
CLOCK OUT
CLOCK IN
CP901
DATA OUT
CN901
SD
MUTE
DATA IN
F
Q902, 903
DTC144ESTP
BUS LINE DRIVE
Q703
2SC1685RSTTA
REGULATOR
Q704
KSC2785YGTA
SWITCHING
(POWER CONT.)
TP701
T701
Power
supply
point
TP702
Q701
2SD1862QRTV6
REGULATOR
Q904, 905
KSC2785YGTA
BUS LINE DRIVE
Q901
KSC2785YGTA
SWITCHING
(RESET)
Q907, 908
KSC2785YGTA
POWER DOWN
DETECTOR
IC901
MN187125STT1
MICRO COMPUTER
D711～718
1SS254TA
E701
T=4ms.
5V
0V
-24V

■ REPLACEMENT PARTS LIST

Notes : • Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
• The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	LM7001	I. C, PLL FREQENCY	
IC201	AN7273W	I. C, FM/AM IF AMP. DET	
IC301	RVIBA1332L	I. C, FM MPX	
IC901	MN187125STT1	I. C, MICRO COMPUTER	
		TRANSISTOR(S)	
Q101, 102	2SC2785FE	TRANSISTOR	
Q201, 202	2SC2787L	TRANSISTOR	
Q204, 205	KSC2785YGTA	TRANSISTOR	
Q207	KSC2785YGTA	TRANSISTOR	
Q208, 209	KSA1175YGTA	TRANSISTOR	
Q251	KSA1175YGTA	TRANSISTOR	
Q252-254	KSC2785YGTA	TRANSISTOR	
Q255, 256	2SC2785FE	TRANSISTOR	
Q257	KSC2785YGTA	TRANSISTOR	
Q301, 302	KSC2785YGTA	TRANSISTOR	
Q303, 304	2SC1740SQ	TRANSISTOR	
Q701	2SD1862QRTV6	TRANSISTOR	
Q703	2SC1685RSTTA	TRANSISTOR	
Q704	KSC2785YGTA	TRANSISTOR	
Q901	KSC2785YGTA	TRANSISTOR	
Q902, 903	DTC144EKT96	TRANSISTOR	
Q904, 905	KSC2785YGTA	TRANSISTOR	
Q906	DTA144ESTP	TRANSISTOR	
Q907, 908	KSC2785YGTA	TRANSISTOR	
		DIODE(S)	
D201	1SS291TA	DIODE	
D302	1SS254TA	DIODE	
D701	1SR35200TB	DIODE	⚠
D703	MA4068M	DIODE	
D705, 706	1SR35200TB	DIODE	⚠
D707	MA4240H	DIODE	
D708	MA4150M	DIODE	
D709	MA4047MTA	DIODE	
D711-718	1SS254TA	DIODE	
D901	1SS291TA	DIODE	
D902, 903	1SS254TA	DIODE	
D909	1SS254TA	DIODE	
D912	1SS254TA	DIODE	
		VARIABLE RESISTOR(S)	

Ref. No.	Part No.	Part Name & Description	Remarks
VR301	EVNDXAA00B14	V. R, FM MPX VCO ADJ.	
		COMPONENT COMBINATION(S)	
Z101	SNVFE337G01	COMPONENT COMBINATION	
Z202	RLI2Z003M-T	COMPONENT COMBINATION	
Z251	RLA6Z002M-T	COMPONENT COMBINATION	
Z321	SLA4Z13M-Z	COMPONENT COMBINATION	
Z901	RCDHC-278	REMOTE SENSOR	
		COIL(S)	
L101	ELEXTR22MA9	COIL	
L202	ELESNR47MA	COIL	
L321, 322	RLM2B003M-K	COIL	
L324	SLM1B10M-1M	COIL	
L325	ELEXT1R0KA9	COIL	
L901	ELEXT101KA9	COIL	
		TRANSFORMER(S)	
T201	RLI4B002M-Z	TRANSFORMER	
T202	RLI4B003M-Z	TRANSFORMER	
T701	RFKCTCH7N-K	POWER TRANSFORMER	⚠
		FILTER(S)	
CF201	RLFFETNGA01L	CERAMIC FILTER	
CF202	RLFFETNGA02L	CERAMIC FILTER	
		OSCILLATOR(S)	
X101	SVQ49U722-S	OSCILLATOR	
X901	EF0GC4194T4	OSCILLATOR	
		DISPLAY	
FL901	RSL0096-F	DISPLAY	
		SWITCH(ES)	
S901	EVQ21405R	SW, PRESET UP	
S902	EVQ21405R	SW, PRESET DOWN	
S903	EVQ21405R	SW, BAND	
S904	EVQ21405R	SW, MEMORY	
S905	EVQ21405R	SW, TUNING UP	

Ref. No.	Part No.	Part Name & Description	Remarks
S906	EVQ21405R	SW, TUNING DOWN	
S907	EVQ21405R	SW, SELECT UP	
S908	EVQ21405R	SW, SELECT DOWN	
S909	EVQ21405R	SW, TIMER SET	
S910	EVQ21405R	SW, CLOCK SET	
S911	EVQ21405R	SW, RECALL	
S912	EVQ21405R	SW, CANSEL	
S913	EVQ21405R	SW, POWER	
		CONNECTOR(S)	
CN901	RJU003K006M1	SOCKET(6P)	
CN902, 903	RJU003K008M1	SOCKET(8P)	
CP901	RJT003K006M1	CONNECTOR(6P)	
CP902, 903	RJT003K008M1	CONNECTOR(8P)	
		VARIABLE CAPACITOR	
CT101	RCV10AF1T-S	TRIMMER CAPACITOR	
		JACK(S)	
JK101	RJH4202M	ANT. TERMINAL BOARD	
JK701	RJT055K011-1	CONTROL TERMINAL	

Notes : • Capa
• Resi

Ref. No.	Part
R104	ERDS2TJ5
R105	ERDS2TJ1
R106	ERDS2TJ5
R107	ERDS2TJ1
R111	ERDS2TJ3
R116	ERDS2TJ1
R118-121	ERDS2TJ1
R122	ERDS2TJ3
R125	ERDS2TJ1
R126	ERDS2TJ1
R201	ERDS2TJ8
R202	ERDS2TJ4
R203	ERDS2TJ8
R204	ERDS2TJ3
R205	ERDS2TJ4
R206	ERDS2TJ3
R208	ERDS2TJ1
R209	ERDS2TJ1
R210	ERDS2TJ1
R211	ERDS2TJ6
R212	ERDS2TJ4
R213	ERDS2TJ4
R214	ERDS2TJ1
R215	ERDS2TJ2
R216	ERDS2TJ1
R217	ERDS2TJ3
R218	ERDS2TJ1
R219	ERDS2TJ5
R220	ERDS2TJ8
R221	ERDS2TJ5
R222	ERDS2TJ5
R223	ERDS2TJ1
R228	ERDS2TJ1
R229	ERDS2TJ1
R240	ERDS2TJ1
R247	ERDS2TJ1
R251	ERDS2TJ1
R252	ERDS2TJ8
R253	ERDS2TJ1
R254	ERDS2TJ2
R256	ERDS2TJ1
R258, 259	ERDS2TJ1
R261	ERDS2TJ1
R262	ERDS2TJ3
R263	ERDS2TJ1
R264	ERDS2TJ1

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R104	ERDS2TJ562	1/4W 5.6K
R105	ERDS2TJ103	1/4W 10K
R106	ERDS2TJ561	1/4W 560
R107	ERDS2TJ102	1/4W 1K
R111	ERDS2TJ393	1/4W 39K
R116	ERDS2TJ103	1/4W 10K
R118-121	ERDS2TJ102	1/4W 1K
R122	ERDS2TJ390	1/4W 39
R125	ERDS2TJ103	1/4W 10K
R126	ERDS2TJ101	1/4W 100
R201	ERDS2TJ822T	1/4W 8.2K
R202	ERDS2TJ471	1/4W 470
R203	ERDS2TJ824	1/4W 820K
R204	ERDS2TJ331	1/4W 330
R205	ERDS2TJ474	1/4W 470K
R206	ERDS2TJ331	1/4W 330
R208	ERDS2TJ104	1/4W 100K
R209	ERDS2TJ102	1/4W 1K
R210	ERDS2TJ122	1/4W 1.2K
R211	ERDS2TJ684	1/4W 680K
R212	ERDS2TJ474	1/4W 470K
R213	ERDS2TJ473	1/4W 47K
R214	ERDS2TJ103	1/4W 10K
R215	ERDS2TJ222	1/4W 2.2K
R216	ERDS2TJ102	1/4W 1K
R217	ERDS2TJ332	1/4W 3.3K
R218	ERDS2TJ103	1/4W 10K
R219	ERDS2TJ561	1/4W 560
R220	ERDS2TJ822	1/4W 8.2K
R221	ERDS2TJ560T	1/4W 56
R222	ERDS2TJ561	1/4W 560
R223	ERDS2TJ103	1/4W 10K
R228	ERDS2TJ104	1/4W 100K
R229	ERDS2TJ183	1/4W 18K
R240	ERDS2TJ152T	1/4W 1.5K
R247	ERDS2TJ103	1/4W 10K
R251	ERDS2TJ103	1/4W 10K
R252	ERDS2TJ822	1/4W 8.2K
R253	ERDS2TJ182	1/4W 1.8K
R254	ERDS2TJ223	1/4W 22K
R256	ERDS2TJ102	1/4W 1K
R258, 259	ERDS2TJ122	1/4W 1.2K
R261	ERDS2TJ102	1/4W 1K
R262	ERDS2TJ332	1/4W 3.3K
R263	ERDS2TJ153	1/4W 15K
R264	ERDS2TJ102	1/4W 1K
R265	ERDS2TJ103	1/4W 10K
R301, 302	ERDS2TJ752T	1/4W 7.5K
R303	ERDS2TJ821T	1/4W 820
R304	ERDS2TJ102	1/4W 1K
R305	ERDS2TJ682T	1/4W 6.8K
R306	ERDS2TJ390	1/4W 39
R307, 308	ERDS2TJ272T	1/4W 2.7K
R309, 310	ERDS2TJ681T	1/4W 680
R311, 312	ERDS2TJ104	1/4W 100K
R314	ERDS2TJ102	1/4W 1K
R316	ERDS2TJ103	1/4W 10K
R317, 318	ERDS2TJ274	1/4W 270K
R327	ERDS2TJ183T	1/4W 18K
R701	ERDS2TJ5R6	1/4W 5.6
R702	ERDS2TJ152	1/4W 1.5K
R703	ERDS2TJ331	1/4W 330
R704	ERDS1FVJ101T	1/2W 100 ⚠
R705	ERDS2TJ2R2T	1/4W 2.2
R706	ERDS2TJ561	1/4W 560
R707	ERDS2TJ331	1/4W 330
R708	ERDS2TJ272T	1/4W 2.7K
R709	ERDS2TJ561	1/4W 560
R710, 711	ERDS2TJ101	1/4W 100
R712	ERDS2TJ562	1/4W 5.6K
R713	ERDS2TJ1R0	1/4W 1.0
R714	ERDS2TJ100	1/4W 10
R901	ERDS2TJ100	1/4W 10
R902, 903	ERDS2TJ470	1/4W 47
R904	ERDS2TJ223	1/4W 22K
R905	ERDS2TJ470	1/4W 47
R906	ERDS2TJ103	1/4W 10K
R907	ERDS2TJ223	1/4W 22K
R908	ERDS2TJ470	1/4W 47
R909, 910	ERDS2TJ103	1/4W 10K
R911	ERDS2TJ333	1/4W 33K
R912	ERDS2TJ103	1/4W 10K
R913	ERDS2TJ223	1/4W 22K
R915	ERDS2TJ822	1/4W 8.2K
R916	ERDS2TJ122	1/4W 1.2K
R918, 919	ERDS2TJ103	1/4W 10K
R920	ERDS2TJ102	1/4W 1K
R921	ERDS2TJ103	1/4W 10K
R923-926	ERDS2TJ393	1/4W 39K
R927	ERDS2TJ104	1/4W 100K
R928	ERDS2TJ472	1/4W 4.7K
R929	ERDS2TJ102	1/4W 1K
R937	ERDS2TJ822	1/4W 8.2K
R938	ERDS2TJ562	1/4W 5.6K
R939	ERDS2TJ393	1/4W 39K
R940	ERDS2TJ182	1/4W 1.8K
R941	ERDS2TJ222	1/4W 2.2K
R942	ERDS2TJ104	1/4W 100K
R943	ERDS2TJ122	1/4W 1.2K
R945	ERDS2TJ104	1/4W 100K
R956	ERDS2TJ104	1/4W 100K
R961	ERDS2TJ563	1/4W 56K
		CAPACITORS
C101	ECEA1EK4R7	25V 4.7U
C103	ECKR1H103ZF5	50V 0.01U
C104	ECEA1CU101	16V 100U
C105	ECCR1H080DC5	50V 8P
C106	ECCR1H150KC5	50V 15P
C107	ECKR1H103ZF5	50V 0.01U
C108	ECEA1CK100B	16V 10U
C109	ECBT1C103NS5	16V 0.01U
C110	ECKR1H103ZF5	50V 0.01U
C111	ECBT1H102KB5	50V 1000P
C112	ECKR1H103ZF5	50V 0.01U
C201	ECBT1H102KB5	50V 1000P
C202	ECKR1H103ZF5	50V 0.01U
C203	ECBT1H102KB5	50V 1000P
C204	ECFR1E473KR	25V 0.047U
C205	ECBT1H8R2KC5	50V 8.2P
C206	ECCR1H101K5	50V 100P
C207	ECKT1H223ZF	50V 0.022U
C208	ECBT1H150JC5	50V 15P
C209	ECEA0JU101B	6.3V 100U
C210	ECEA1EK3R3B	25V 3.3U
C211	ECFR1E103KR	25V 0.01U
C212	ECKR1H103ZF5	50V 0.01U
C213	ECKT1H223ZF	50V 0.022U
C215	ECCR1H101K5	50V 100P
C216	ECEA1HK010B	50V 1U
C217	ECEA1CK100B	16V 10U
C218	ECKR1H103ZF5	50V 0.01U
C219	ECFR1E473KR	25V 0.047U
C220, 221	ECBT1C103NS5	16V 0.01U
C226	ECBT1H180JC5	50V 18P
C227	ECEA1CK100B	16V 10U
C251	ECBT1E223ZF	25V 0.022U
C252	ECEA1HK010B	50V 1U
C253	ECBT1E223ZF	25V 0.022U
C301	ECEA0JU102	6.3V 1000U
C302	ECEA1CK100B	16V 10U
C303	ECFR1E103KR	25V 0.01U
C304	ECQG1H102KZT	50V 1000P

Ref. No.	Part No.	Values & Remarks
C305	ECEA1HKR47	50V 0.47U
C306	ECEA1HKR33	50V 0.33U
C307	ECEA1HK010B	50V 1U
C309, 310	ECFR1E103KR	25V 0.01U
C311, 312	ECEA1HK010B	50V 1U
C323, 324	ECFR1E392KR	25V 3900P
C325	ECBT1H330J5	50V 33U
C330	ECBT1H471KB5	50V 470U
C351, 352	ECEA1CK100B	16V 10U
C701	ECKR1H103ZF5	50V 0.01U
C702	ECEA1CU102B	16V 1000U
C703	ECKR1H103ZF5	50V 0.01U
C704	ECEA1AU221	10V 220U
C708	ECKR2H102ZF5	500V 1000P
C709	ECEA1VU331B	35V 330U
C710	ECKR1H103ZF5	50V 0.01U
C711	ECEA1CU101	16V 100U
C712	ECKR2H102ZF5	500V 1000P
C713	ECEA1HU220	50V 22U
C714	ECEA1HK010B	50V 1U
C715	ECKR1H103ZF5	50V 0.01U
C901	ECFR1H104ZF	50V 0.1U
C902, 903	ECEA0JU102	6.3V 1000U
C904	ECEA0JK330	6.3V 33U
C905, 906	ECBT1C103NS5	16V 0.01U
C921	ECEA1HK0R1	50V 0.1U
C922	ECEA1EK3R3B	25V 3.3U
C931	ECBA1H681KB5	50V 680P

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F910502100FF/HH/KK/MT

ORDER NO. AD9104082C8

Service Manual

Amplifier

Amplifier

SU-CH7

Color

(K) .... Black Type

Areas

Country Code	Area	Color
(E)	Continental Europe.	(K)
(EB)	Great Britain.	
(EG)	F.R. Germany and Italy.	
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	

System: SC-CH7

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

■ SPECIFICATIONS

(DIN 45 500)

■ MAIN AMP. SECTION

Power output	DIN 1 kHz THD 1% 6Ω 2×25 W 10 kHz THD 1% 8Ω 2×5 W
both channel driven at 240 V	
Total harmonic distortion	
half power at 1 kHz: Low Amp	0.09% (6Ω)
Headphones output level/impedance	300 mV/330Ω

■ PRE AMP. SECTION

Input sensitivity/impedance	
PHONO	3 mV/47 kΩ
MIC	0.7 mV/10 kΩ
DAT	250 mV/27 kΩ
S/N (rated power, 6Ω): Low Amp	
PHONO	70 dB (IHF. A 75 dB)
DAT, CD, TAPE	84 dB (IHF. A 85 dB)
Graphic equalizer control	80 Hz, 250 Hz, 1 kHz, 4 kHz, 12.5 kHz
Muting	−20 dB
Super bass	55 Hz, +4 dB
Output voltage/impedance	
DAT REC OUT	150 mV

■ GENERAL

Power consumption	250 W
Power supply	
For Great Britain and Oceania	AC 50/60 Hz, 230~240 V
For F.R. Germany, Italy and Continental Europe	AC 50/60 Hz, 230 V
For others	AC 50/60 Hz, 110 V~127 V/220 V~240 V
Dimensions (W×H×D)	215×110×303 mm (8 15/32"×4 11/32"×11 15/16")
Weight	4.3 kg (9.3 lb.)

Notes:

1. Total harmonic distortion is measured by the digital spectrum analyzer.
2. Specifications are subject to change without notice.
3. Weight and dimensions shown are approximate.

System	Tuner	Amplifier	CD Player	Cassette Deck	Speakers
SC-CH7	ST-CH7L	SU-CH7	SL-CH7	RS-CH7	SB-CH7

Technics/Panasonic

(E) (EB) (EG) (GC) (GN)

■ CONTENTS

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■ BEFORE REPAIR

(1) Turn off the power supply. Using a 10Ω, 5 W resistor connect both ends of power supply capacitors (C703, C704) in order to discharge the voltage.

(2) Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50 Hz/60 Hz in NO SIGNAL mode should be shown below with respect to supply voltage 110 V~127 V/220 V~240 V.

Power supply voltage	AC 120 V	AC 240 V
Consumed current 50 Hz	——	85~255 mA
Consumed current 60 Hz	160~480 mA	——

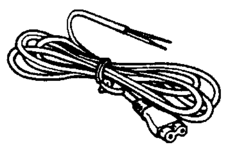
■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:
*No sound is heard when the power is switched ON.
*Sound stops during a performance.
The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.
If this occurs, follow the procedure outlined below:

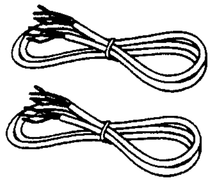
1. Switch OFF the power.
2. Determine the cause of the problem and correct it.
3. Switch ON the power once again.

Note:
When the protection circuitry functions, the unit will not operate unless the power is first switched OFF and then ON again.

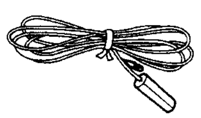
■ ACCESSORIES



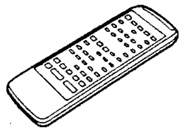
●AC power supply cords (1)
<SFDAC05E03>
for (E, EG) area
<SJA193> for (EB) area
<RJA0004> for (GC) area
<SJA173> for (GN) area



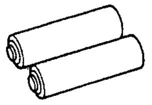
●Speaker cords (2)
<REC201B50Q-1>



●FM indoor antenna (1)
<SSA270M>
for (E, EB, EG) area
<SSA272M> for (GC, GN) area



●Remote control transmitter (1)
<RAK-SC510W>
for (E, EB, EG) area
<RAK-SC511W>
for (GC, GN) area



●Remote control batteries (2)
(UM-4, "AAA", R03)

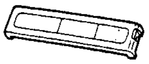
●Attachment plug (1)
<SJP9009> for (EB) area

- Flat cables (2)

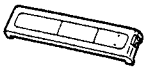
Blue
(REX9162)

Black
(REX9163)

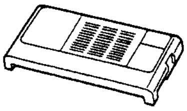
- Back cover (4)



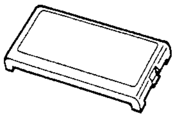
<RYF0122-K>
for CD player



<RYF0122-K>
for tuner

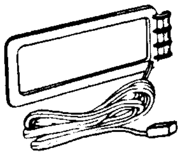


<RKF0127D-K2>
for amplifier

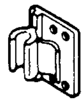


<RKF0127E-K2>
for cassette deck

- LW/MW loop antenna (1)
  and Antenna holder (1)
  and mounting screws (2)



<SPB1163T>

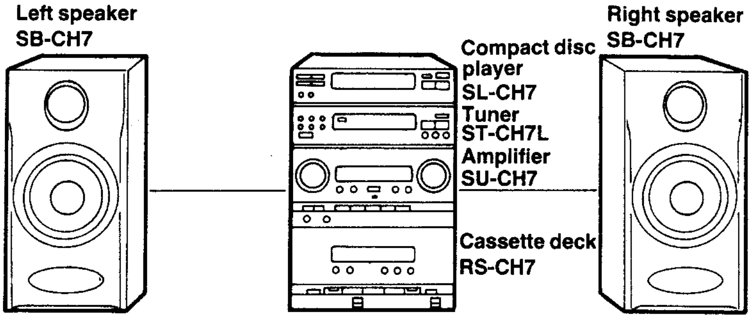


<SMA233-1M>

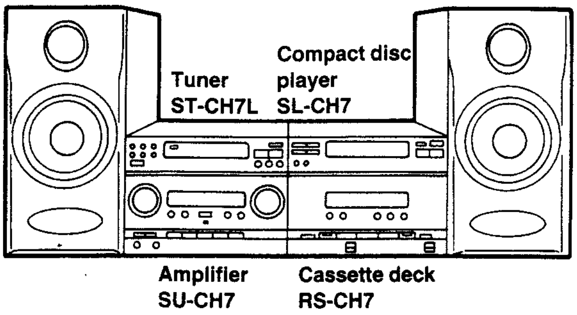
<XTN3+10AFZ>

■ HOW TO INSTALL THE SYSTEM

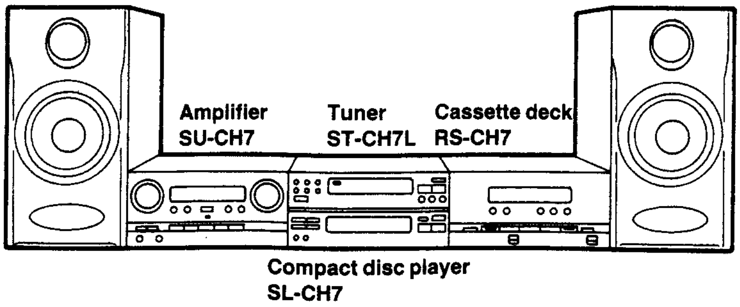
Installing the components vertically


Left speaker
SB-CH7
Compact disc player
SL-CH7
Tuner
ST-CH7L
Amplifier
SU-CH7
Cassette deck
RS-CH7
Right speaker
SB-CH7

Installing the components horizontally


Tuner
ST-CH7L
Compact disc player
SL-CH7
Amplifier
SU-CH7
Cassette deck
RS-CH7

Installing the components on a line

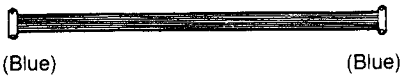

Amplifier
SU-CH7
Tuner
ST-CH7L
Cassette deck
RS-CH7
Compact disc player
SL-CH7

■ CONNECTIONS

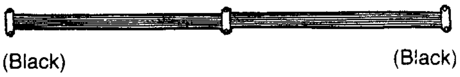
Flat cables

After connection, please fold and press the cables as flat to the back of the unit as possible.

From the amplifier to the cassette deck



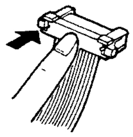
From the compact disc player via the tuner to the amplifier


(Black)
(Black)

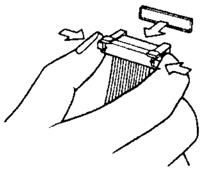
Connecting

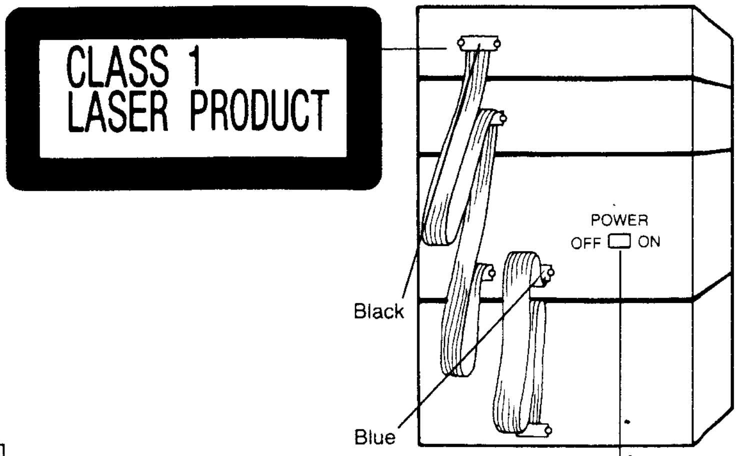
Hold the connector with the recessed part up and press in at the center until you hear a click.

The white line should be on the right side.

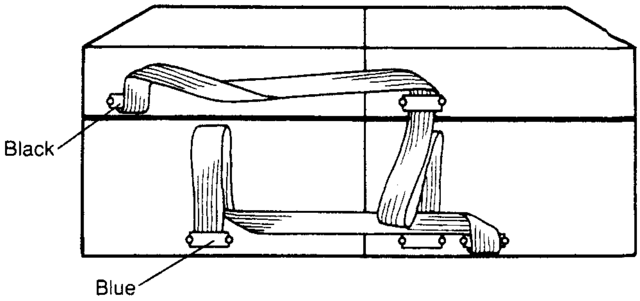


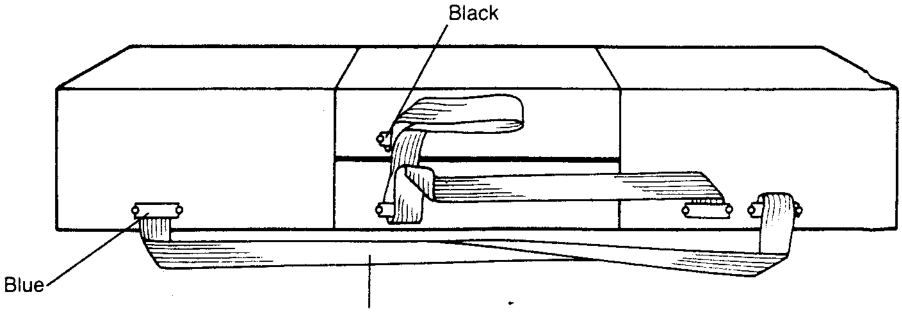
Disconnecting




CLASS 1
LASER PRODUCT
POWER
OFF ON
Black
Blue

Power switch is located on the rear panel.
Make sure that the power switch on the back of the amplifier is switched ON.



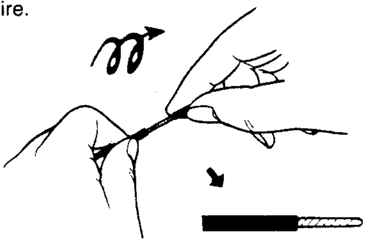


When installing the back cover, put this flat cable out of the back cover.

Speaker cables

Other types of speaker cannot be connected to this unit. Match the four wires from the left and right speaker cables with the same colored levers of the speaker terminales, then insert the wires into the respective terminals.

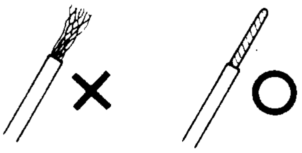
① Twist the wire.



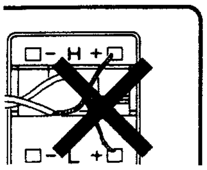
② Push down on the lever, insert the bare ends of the wires, and push up the lever. (Refer to the right)

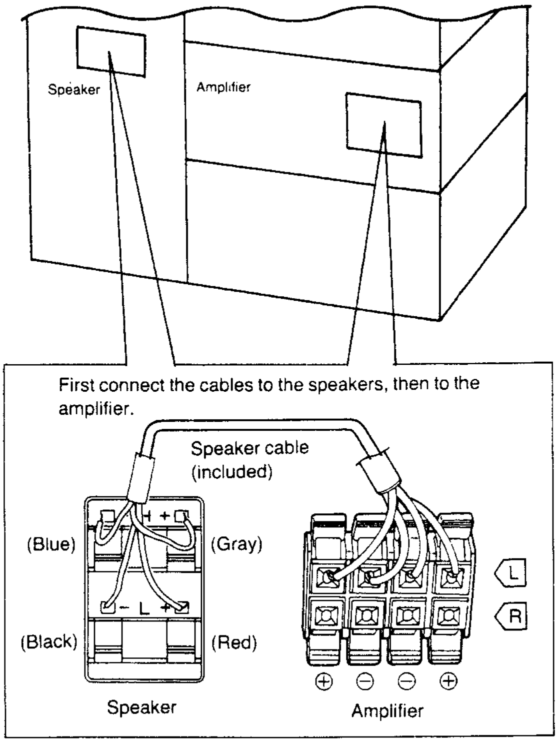
Note:

- Make sure the bare ends of the wires are not unraveled. (If they are, twist them tight again.)



- Take care not to short the wires. (The main unit could be damaged if they are shorted.)





First connect the cables to the speakers, then to the amplifier.

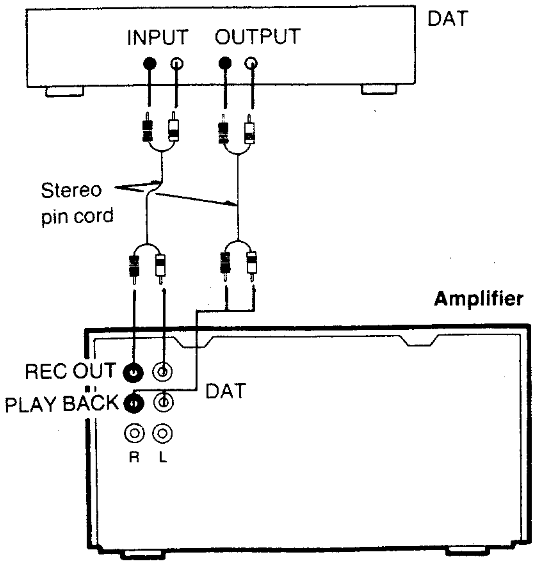
Speaker
Amplifier
Speaker cable (included)
(Blue)
(Gray)
(Black)
(Red)
H
L
L
R
⊕ ⊖ ⊖ ⊕
Speaker
Amplifier

Notice for speaker connections:
Connect each color coded wire of the speaker cable to the corresponding color coded terminal according to the following chart.

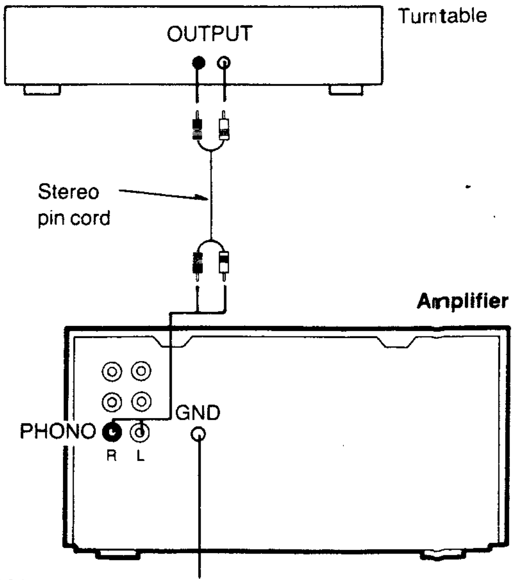
Polarity	–	+
High tone	Blue	Gray
Low tone	Black	Red

External unit connection

■ DAT (digital audio tape deck)


DAT
INPUT
OUTPUT
Stereo pin cord
Amplifier
REC OUT
PLAY BACK
DAT
R
L

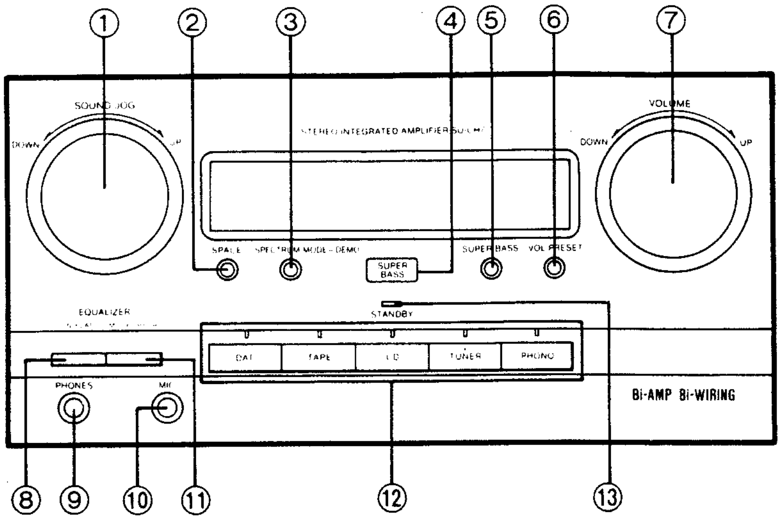
■ PHONO (turntable system)


Turntable
OUTPUT
Stereo pin cord
Amplifier
GND
PHONO
R
L

■ "GND" terminal

This terminal is for use with turntables which have a ground wire.

■ LOCATION OF CONTROLS



Amplifier: control section

① Sound effect level control (SOUND JOG)

This control is used for adjusting the level of the ambience enhancement effect and the equalization level.

② Ambience enhancement button (SPACE)

This button is used to activate ambience enhancement mode.

③ Spectrum mode-select/demonstration button (-SPECTRUM MODE—DEMO)

This button is used to select one of the six spectrum curves. If you press and hold this button, six types of sound effects (spectrum curve in combination with ambience enhancement) will be sequentially changed (Demonstration mode).

④ Super bass indicator

Illuminates when the super bass mode is activated.

⑤ Super bass button (SUPER BASS)

When this button is pressed, the dynamic low frequency ranges are boosted.

⑥ Volume preset button (VOL. PRESET)

This button is used to make a volume presetting.

⑦ Volume level control (VOLUME)

This control is used to adjust the volume level (−82 dB~0 dB). Note that −82 dB is the lowest volume setting and 0 dB is the highest level setting.

⑧ Equalization function button (ON/FLAT)

This button is used to switch the equalization correction function. If no equalization correction is desired, press this button again to cancel the function.

⑨ Headphones jack (PHONES)

⑩ Microphone jack (MIC)

⑪ Equalization mode-select/recall button (-MODE—RECALL)

This button is used to retrieve a pre-programmed equalization curve from the memory. If you press and hold this button, a curve you programmed can be retrieved.

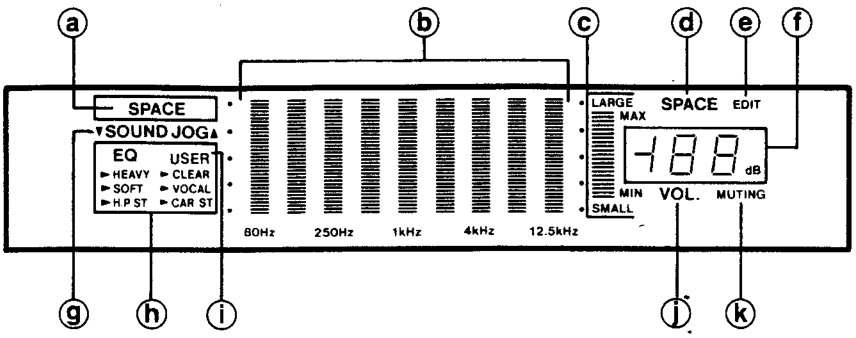
⑫ Input selectors and indicators

These selectors are used to select the sound source to be heard. When the sound source is selected, the indicator above the selector will illuminate.

⑬ Standby indicator (STANDBY)

This indicator illuminates when the power "STANDBY⏻/ON" switch of the unit or that of the remote control is switched "OFF". Its purpose is to alert the user of the constant supply voltage to the internal circuitry even with the power switch OFF.

For this unit, even if this switch is switched to the "STANDBY" position, there is still a slight power consumption of about 17 watts: this is in order to retain of the "most recent" memory and the preset-memory functions.



Amplifier: display section

ⓐ Ambience enhancement mode indicator (SPACE)

Illuminates when the ambience enhancement mode is activated.

ⓑ Spectrum analysis display

This display shows the spectrum analysis level.

ⓒ Level meter

Display the volume level as it is being adjusted by the volume control. When adjusting the level of the ambience enhancement effect with the sound effect level control, the display shows the level of the ambience enhancement effect.

ⓓ Ambience enhancement adjustment indicator (SPACE)

Illuminates when adjusting the level of the ambience enhancement effect.

ⓔ CD edit indicator (EDIT)

Illuminates when making an edit-recording of a compact disc.

ⓕ Volume level display

Displays the volume level.

ⓖ Sound effect indicator (▼ SOUND JOG ▲)

When "▼" illuminates, it shows the equalization curves can be adjusted, and when "▲" illuminates, it shows that the ambience enhancement effect can be adjusted.

ⓗ Equalization mode indicators (HEAVY-CAR ST)

These indicators show which of the six equalizaton curves is currently used.

ⓘ "USER" indicator (USER)

This indicator illuminates to show that the desired equalization curves can be programmed into memory or retrieved from the memory.

ⓙ Volume indicator (VOL.)

Illuminates when adjusting the volume level.

ⓚ Muting indicator (MUTING)

Illuminates when the muting mode is activated.

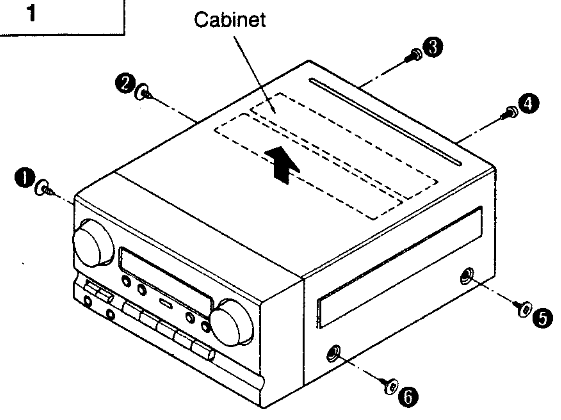
■ DISASSEMBLY INSTRUCTIONS

"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No.
1

Removal of the Cabinet

Procedure
1

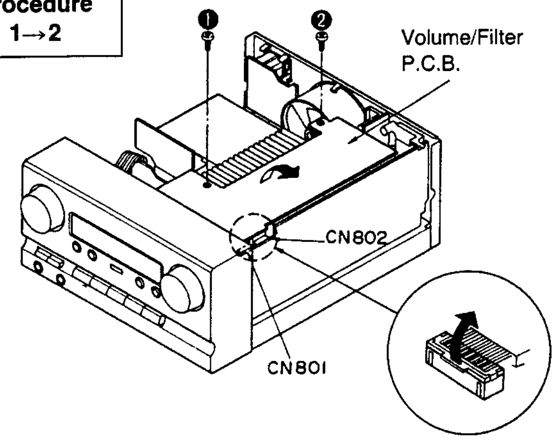

Cabinet
❶
❷
❸
❹
❺
❻

- Remove 6 screws (❶~❻).

Ref. No.
2

Removal of the Volume/Filter P.C.B.

Procedure
1→2

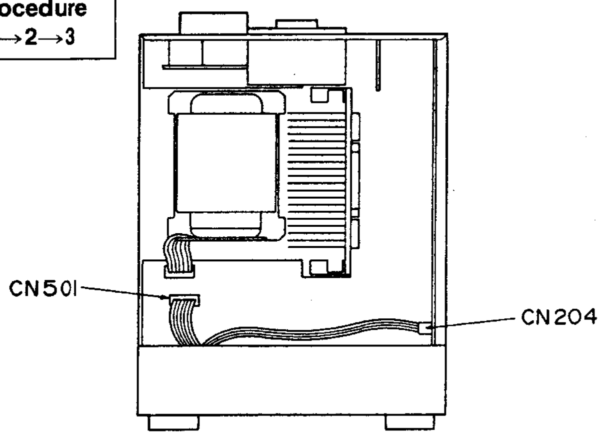

❶
❷
Volume/Filter
P.C.B.
CN802
CN801

1. Remove 2 screws (❶, ❷).
2. Remove the front panel in the direction of arrow.

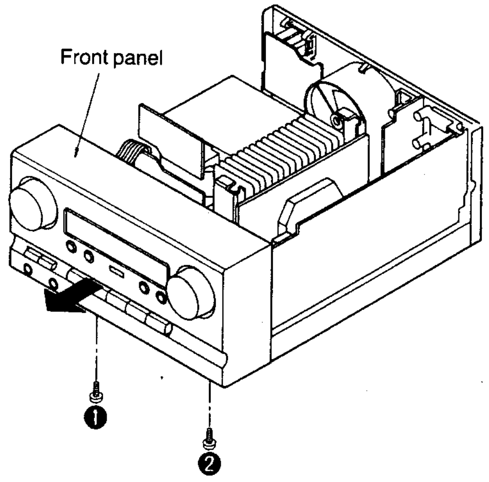
Ref. No.
3

Removal of the Front Panel

Procedure
1→2→3


CN501
CN204

1. Remove 2 flat cables (CN204, CN501).


Front panel
❶
❷

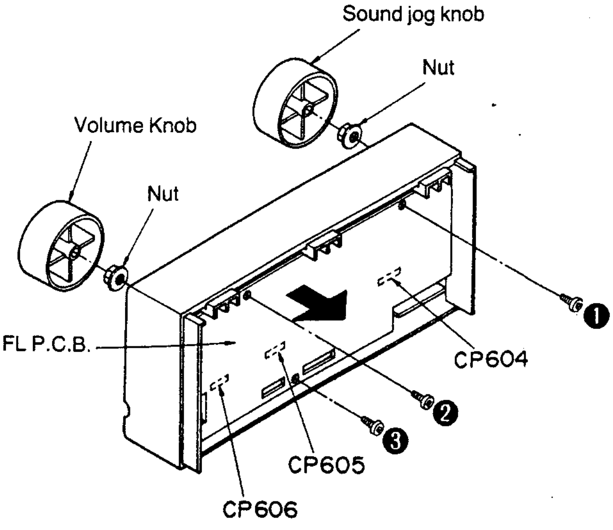
2. Remove the 2 screws (❶, ❷).
3. Remove the front panel in the direction of arrow.

Ref. No.
4

Removal of the FL P.C.B.

Procedure
1→2→3→4

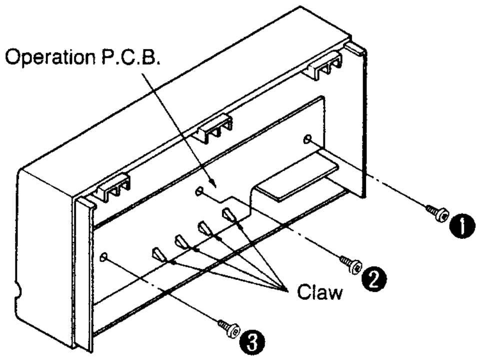
1. Remove the volume knob and nut.
2. Remove the sound jog knob and nut.
3. Remove 3 screws (❶~❸).
4. Remove the P.C.B. in the direction of arrow, making sure not to damage the connectors (CP604, CP605, CP606).


Sound jog knob
Nut
Volume Knob
Nut
FL P.C.B.
❶
CP604
❷
❸
CP605
CP606

Ref. No.
5

Removal of the Operation P.C.B.

Procedure
1→2→3→4→5

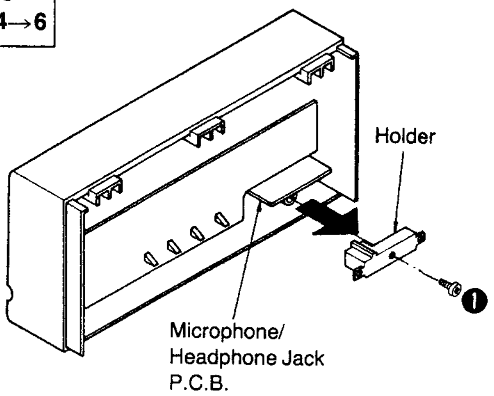

Operation P.C.B.
①
②
Claw
③

1. Remove 3 screws (①~③).
2. Remove 4 claws.

Ref. No.
6

Removal of the Microphone/ Headphone Jack P.C.B.

Procedure
1→2→3→4→6

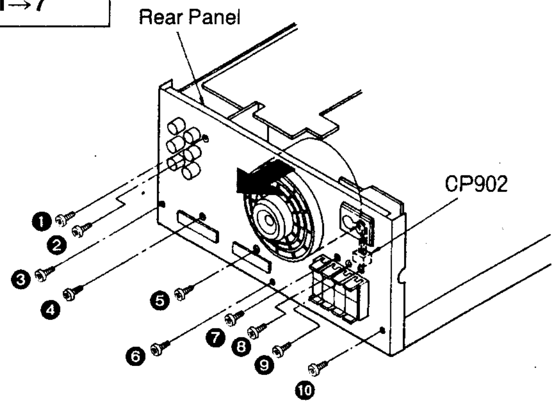

Holder
①
Microphone/
Headphone Jack
P.C.B.

1. Remove the screw (①).
2. Remove the holder.
3. Remove the P.C.B in the direction of arrow.

Ref. No.
7

Removal of the Rear Panel

Procedure
1→7

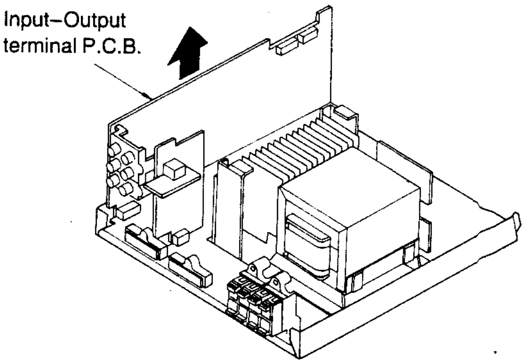

Rear Panel
CP902
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

1. Remove 10 screws (①~⑩).
2. Remove the connector (CP902).
3. Remove the rear panel in the direction of arrow.

Ref. No.
8

Removal of the Input–Output terminal P.C.B.

Procedure
1→2→3→7→8

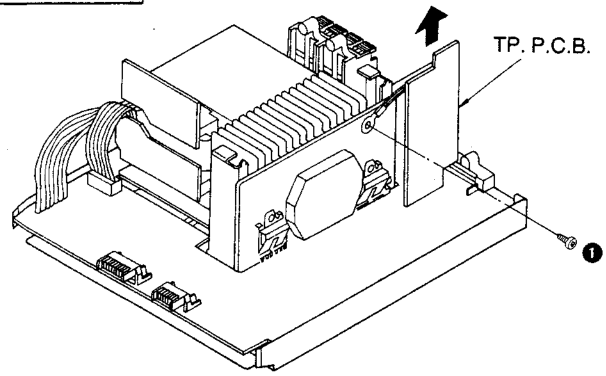

Input–Output
terminal P.C.B.

- Remove the P.C.B. in the direction of arrow.

Ref. No.
9

Removal of the TP. P.C.B.

Procedure
1→2→3→
7→8→9

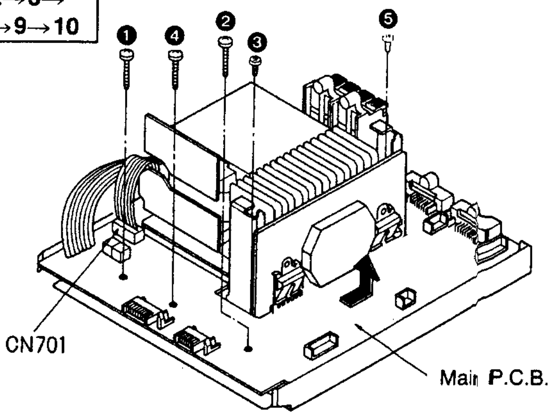


1. Remove the screw (①).
2. Remove the P.C.B. in the direction of arrow.

Ref. No.
10

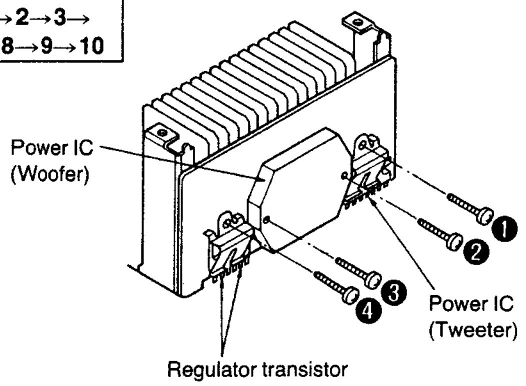
Removal of the Main P.C.B.

Procedure
1→2→3→
7→8→9→10


①
④
②
③
⑤
CN701
Main P.C.B.

1. Remove the flat cable (CN701).
2. Remove 5 screws (①~⑤).

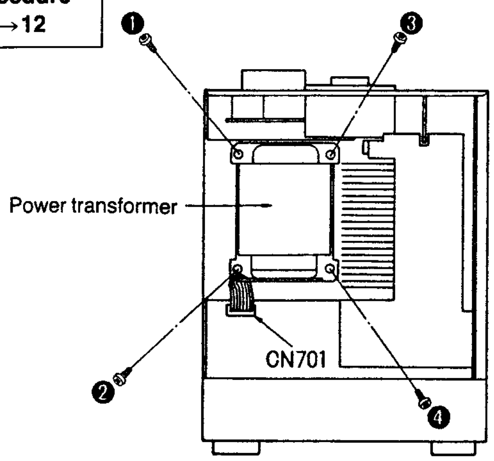
Ref. No. 11	Removal of the Power IC and Regulator Transistor
Procedure 1→2→3→ 7→8→9→10	


Power IC
(Woofer)
❶
❷
❸
❹
Power IC
(Tweeter)
Regulator transistor

1. Unsolder the power IC.
2. Remove 4 screws (❶~❹).

- When mounting the power IC or regulator transistor. Apply silicone compound (SZZOL155) to the rear side of power IC or regulator transistor.

Ref. No. 12	Removal of the Power Transformer
Procedure 1→12	


❶
❸
Power transformer
CN701
❷
❹

1. Remove the flat cable (CN701).
2. Remove the 4 screws (❶~❹).

Ref. No. 13	Removal of the Fan Motor
Procedure 1→7→13	

1. Release the 3 claws (shown in Fig. 1).
2. Insert a screwdriver at the root of the cooling fan.
3. Remove the motor cover (shown in Fig. 3).
4. Remove the motor from the fan casing (shown in Fig. 4).
5. When mounting the motor fan. align the fan casings progection with the hole of the fan motor (shown in Fig. 5).

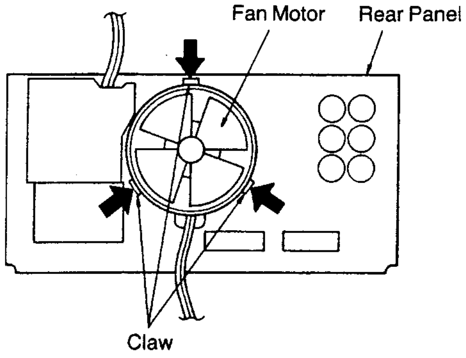

Fan Motor
Rear Panel
Claw

Fig. 1

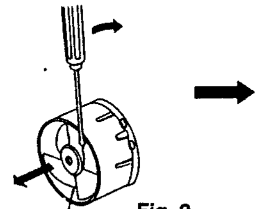

Cooling fan

Fig. 2

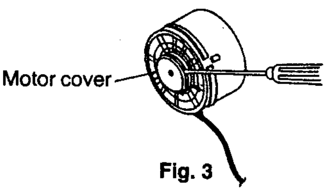

Motor cover

Fig. 3

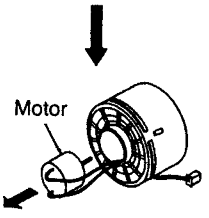


Fig. 4

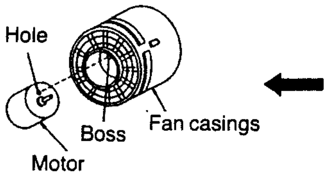
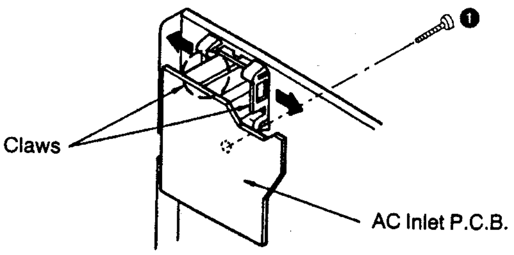

Hole
Boss
Fan casings
Motor

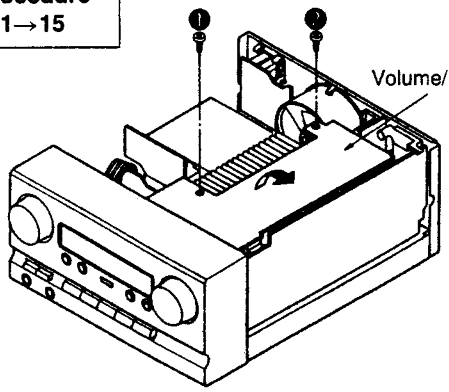
Fig. 5

Ref. No. 14	Removal of AC Inlet P.C.B.
Procedure 1→14	

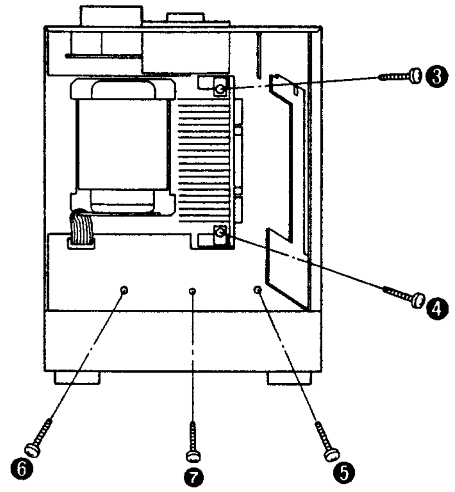
1. Remove the screw (❶).
2. Remove 2 claws.


❶
Claws
AC Inlet P.C.B.

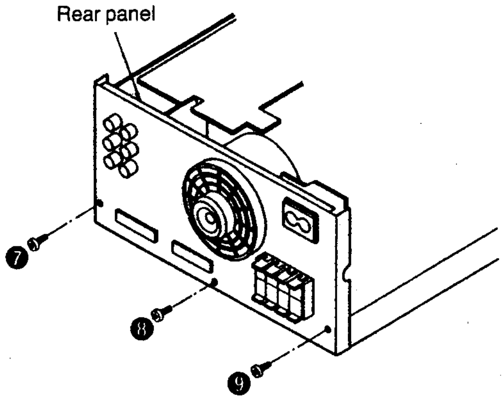
Ref. No. **15**	**Check the Main P.C.B.**
Procedure **1→15**	


❶
❷
Volume/Filter P.C.B.

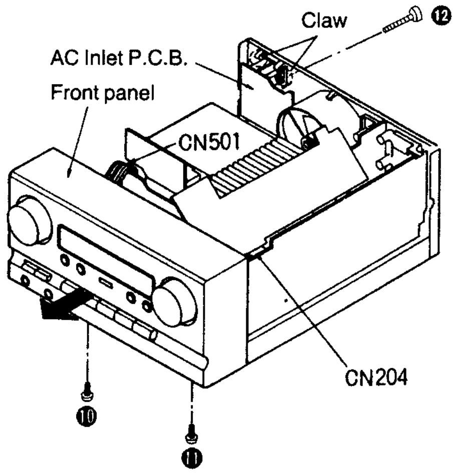
1. Remove 2 screws (❶, ❷).
2. Lift the volume/filter P.C.B. in the direction of arrow.



3. Remove 5 screws (❸~❼).


Rear panel
❼
❽
❾

4. Remove 3 screws (❼~❾).

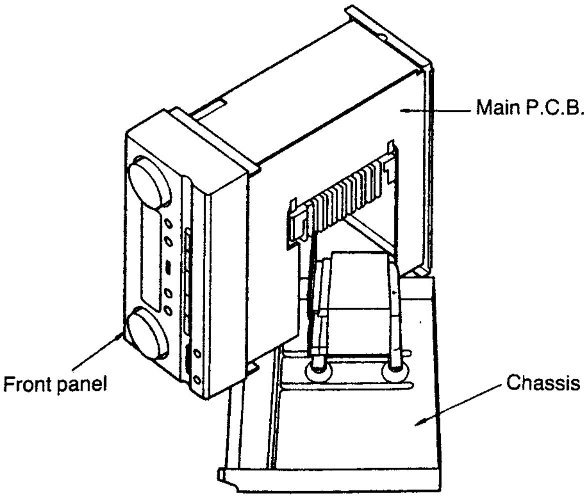

Claw
⓬
AC Inlet P.C.B.
Front panel
CN501
CN204
❿
⓫

5. Remove 2 screws (❿, ⓫).
6. Remove the front panel in the direction of arrow.

Note:

Conect the flat cable to the connectors (CN204, CN501).

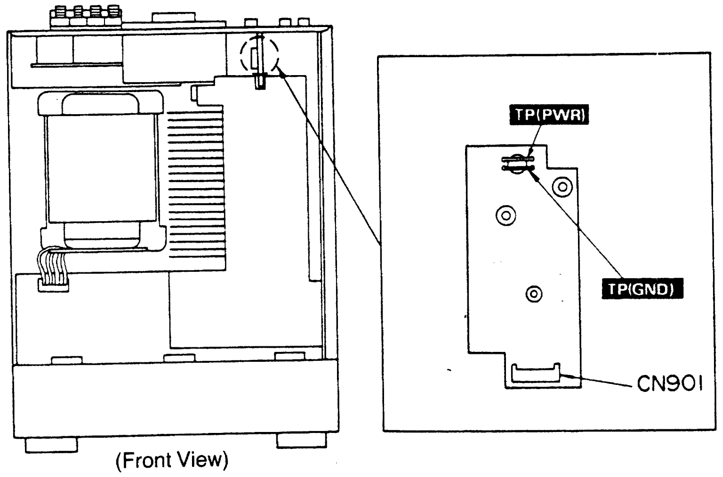
7. Remove the screw (⓬).
8. Remove 2 claws and then remove the AC inlet P.C.B.


Main P.C.B.
Front panel
Chassis

9. Reinstall the front panel to the Main P.C.B.

Set the Power switch of rear panel "ON" position.
For (E), (EB), (EG), (GN) areas.

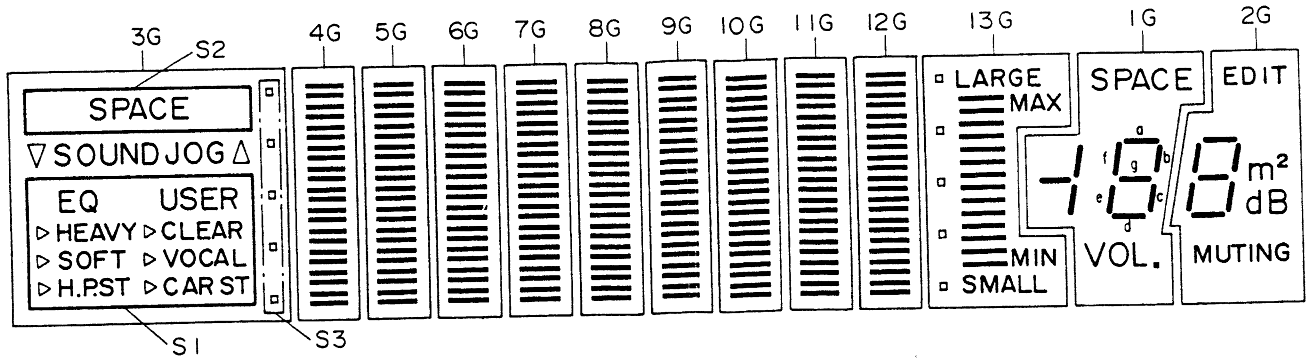
between TP (GND) and TP (PWR) on the control terminal P.C.B. for power on and off.


TP(PWR)
TP(GND)
CN901

(Front View)

■ DESCRIPTION OF FL PANEL

•Grid assignment


3G
S2
4G
5G
6G
7G
8G
9G
10G
11G
12G
13G
1G
2G
SPACE
▽SOUND JOG △
EQ USER
▷HEAVY ▷CLEAR
▷SOFT ▷VOCAL
▷H.P.ST ▷CAR ST
LARGE
MAX
MIN
SMALL
SPACE
EDIT
a
b
c
d
e
f
g
m^2
dB
VOL.
MUTING
S1
S3

•Pin connection

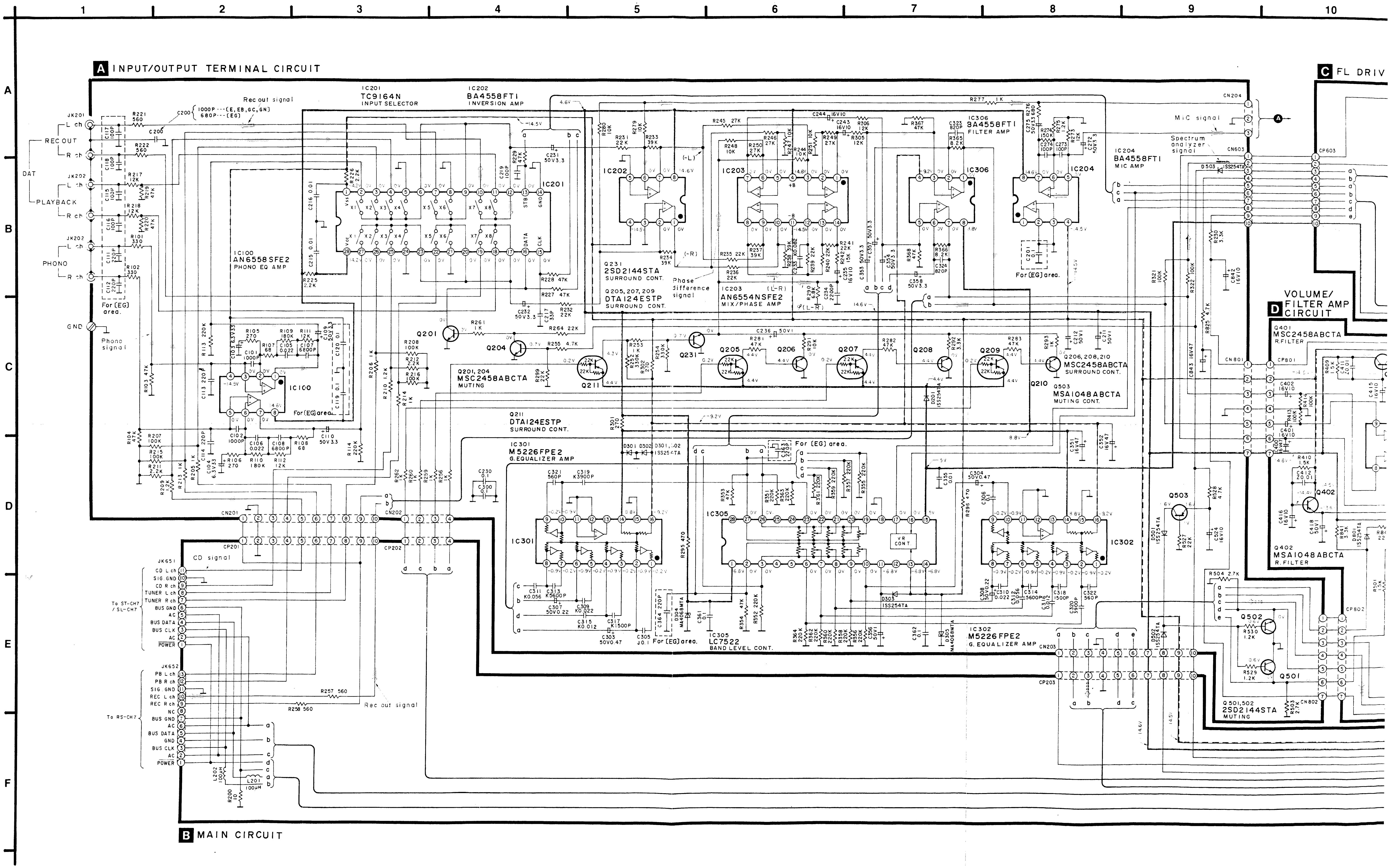
Pin No.	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
Connection	F2	F2	NP	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	NP	NP	NP

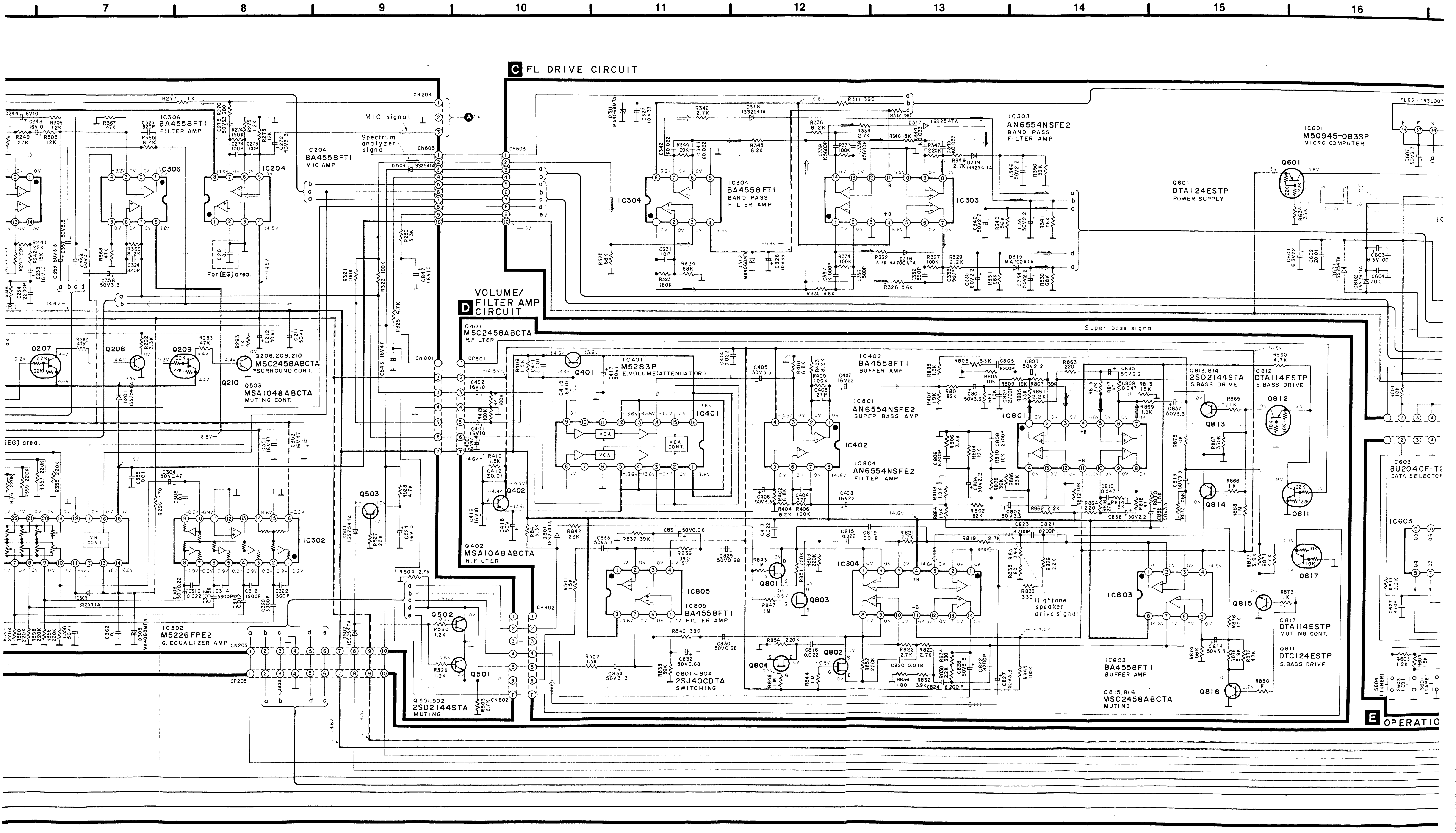
Pin No.	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Connection	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	NP	NP	F1	F1

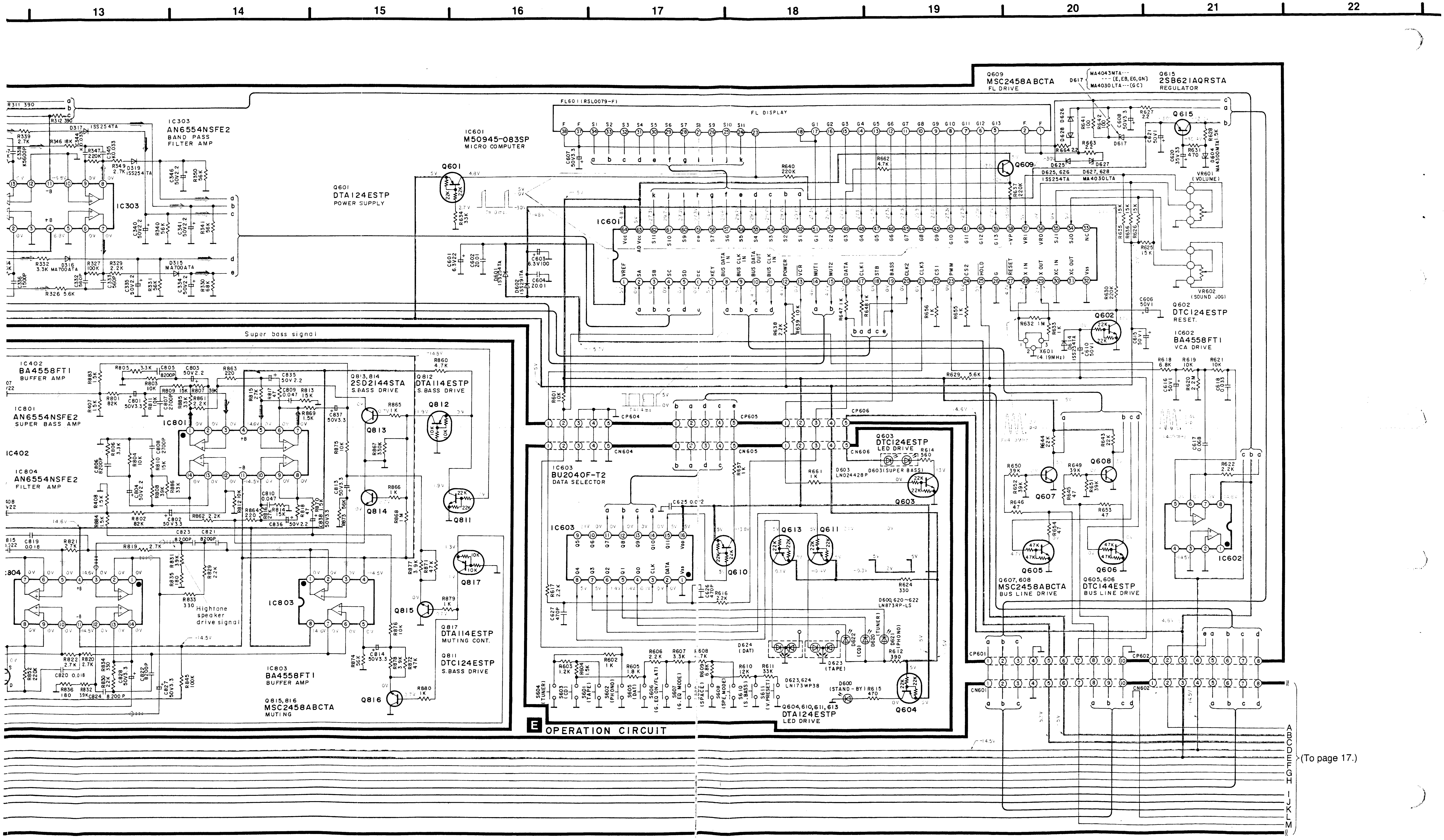
•Anode connection

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	a	a	▷ (HEAVY)	B8	B8	B8	B8	B8	B8	B8	B8	B8	B7
P2	b	b	▷ (CLEAR)	B7	B7	B7	B7	B7	B7	B7	B7	B7	B6
P3	c	c	▷ (H.P.ST)	B4	B4	B4	B4	B4	B4	B4	B4	B4	B3
P4	d	d	S1	B2	B2	B2	B2	B2	B2	B2	B2	B2	B1
P5	e	e	▷ (CAR ST)	B3	B3	B3	B3	B3	B3	B3	B3	B3	B2
P6	f	f	▷ (SOFT)	B6	B6	B6	B6	B6	B6	B6	B6	B6	B5
P7	g	g	▷ (VOCAL)	B5	B5	B5	B5	B5	B5	B5	B5	B5	B4
P8	|	dB	S2	B1	B1	B1	B1	B1	B1	B1	B1	B1	—
P9	—	m^2	USER	B9	B9	B9	B9	B9	B9	B9	B9	B9	MAX MINI
P10	SPACE	EDIT	△	B10	B10	B10	B10	B10	B10	B10	B10	B10	LARGE SMALL
P11	VOL.	MUTING	▽	B11	B11	B11	B11	B11	B11	B11	B11	B11	—
P12	—	—	SPACE SOUND JOG EQ HEAVY CLEAR SOFT VOCAL H.P.ST CAR ST S3	—	—	—	—	—	—	—	—	—	S4

■ SCHEMATIC DIAGRAM (Parts list on pages 30~35.)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
A INPUT/OUTPUT TERMINAL CIRCUIT
B MAIN CIRCUIT
C FL DRIV
D VOLUME/FILTER AMP CIRCUIT
JK201
REC OUT
L ch
R ch
DAT
JK202
PLAYBACK
PHONO
GND
Phono signal
For (EG) area.
Rec out signal
C200 { 1000P ---(E, EB, GC, GN) 680P ---(EG)
IC201 TC9164N INPUT SELECTOR
IC202 BA4558FT1 INVERSION AMP
IC100 AN6558SFE2 PHONO EQ AMP
IC203 AN6554NSFE2 MIX/PHASE AMP
IC306 BA4558FT1 FILTER AMP
IC204 BA4558FT1 MIC AMP
Q231 2SD2144STA SURROUND CONT.
Q205, 207, 209 DTA124ESTP SURROUND CONT.
Q201, 204 MSC2458ABCTA MUTING
Q211 DTA124ESTP SURROUND CONT.
Q206, 208, 210 MSC2458ABCTA SURROUND CONT.
Q503 MSA1048ABCTA MUTING CONT.
Phase difference signal
(L-R)
(-L)
(-R)
IC301 M5226FPE2 G.EQUALIZER AMP
IC302 M5226FPE2 G.EQUALIZER AMP
IC305 LC7522 BAND LEVEL CONT.
VR CONT
For (EG) area.
MIC signal
Spectrum analyzer signal
CN204
CN603
CN801
CP801
CP603
Q401 MSC2458ABCTA R.FILTER
Q402 MSA1048ABCTA R.FILTER
Q501, 502 2SD2144STA MUTING
CN802
CP802
CN201
CP201
CN202
CP202
CN203
CP203
JK651
CD signal
CD L ch
SIG GND
CD R ch
TUNER L ch
TUNER R ch
BUS GND
AC
BUS DATA
BUS CLK
AC
POWER
To ST-CH7 / SL-CH7
JK652
PB L ch
PB R ch
SIG GND
REC L ch
REC R ch
NC
BUS GND
AC
BUS DATA
GND
BUS CLK
AC
POWER
To RS-CH7
R257 560
R258 560
Rec out signal
L202 100μH
L201 100μH
R200 10


7
8
9
10
11
12
13
14
15
16
C FL DRIVE CIRCUIT
D VOLUME/ FILTER AMP CIRCUIT
E OPERATIO
MIC signal
Spectrum analyzer signal
A
CN204
CN603
CP603
CN801
CP801
CP802
CN802
CN203
CP203
IC306 BA4558FT1 FILTER AMP
IC204 BA4558FT1 MIC AMP
For (EG) area.
(EG) area.
IC302 M5226FPE2 G.EQUALIZER AMP
VR CONT
Q207
Q208
Q209
Q210
Q206,208,210 MSC2458ABCTA SURROUND CONT.
Q503 MSA1048ABCTA MUTING CONT.
Q502
Q501
Q501,502 2SD2144STA MUTING
IC304 BA4558FT1 BAND PASS FILTER AMP
IC303 AN6554NSFE2 BAND PASS FILTER AMP
IC601 M50945-083SP MICRO COMPUTER
Q601 DTA124ESTP POWER SUPPLY
Q401 MSC2458ABCTA R.FILTER
Q402 MSA1048ABCTA R.FILTER
IC401 M5283P E.VOLUME(ATTENUATOR)
VCA
VCA CONT
IC402 BA4558FT1 BUFFER AMP
IC801 AN6554NSFE2 SUPER BASS AMP
IC804 AN6554NSFE2 FILTER AMP
IC805 BA4558FT1 FILTER AMP
IC803 BA4558FT1 BUFFER AMP
Q801~804 2SJ40CDTA SWITCHING
Q813,814 2SD2144STA S.BASS DRIVE
Q812 DTA114ESTP S.BASS DRIVE
Q817 DTA114ESTP MUTING CONT.
Q811 DTC124ESTP S.BASS DRIVE
Q815,816 MSC2458ABCTA MUTING
Super bass signal
Hightone speaker drive signal
IC603 BU2040F-T DATA SELECTOR
FL601 (RSL007
S604 (TUNER)
S603 (CD)
S601 (TAPE)


13
14
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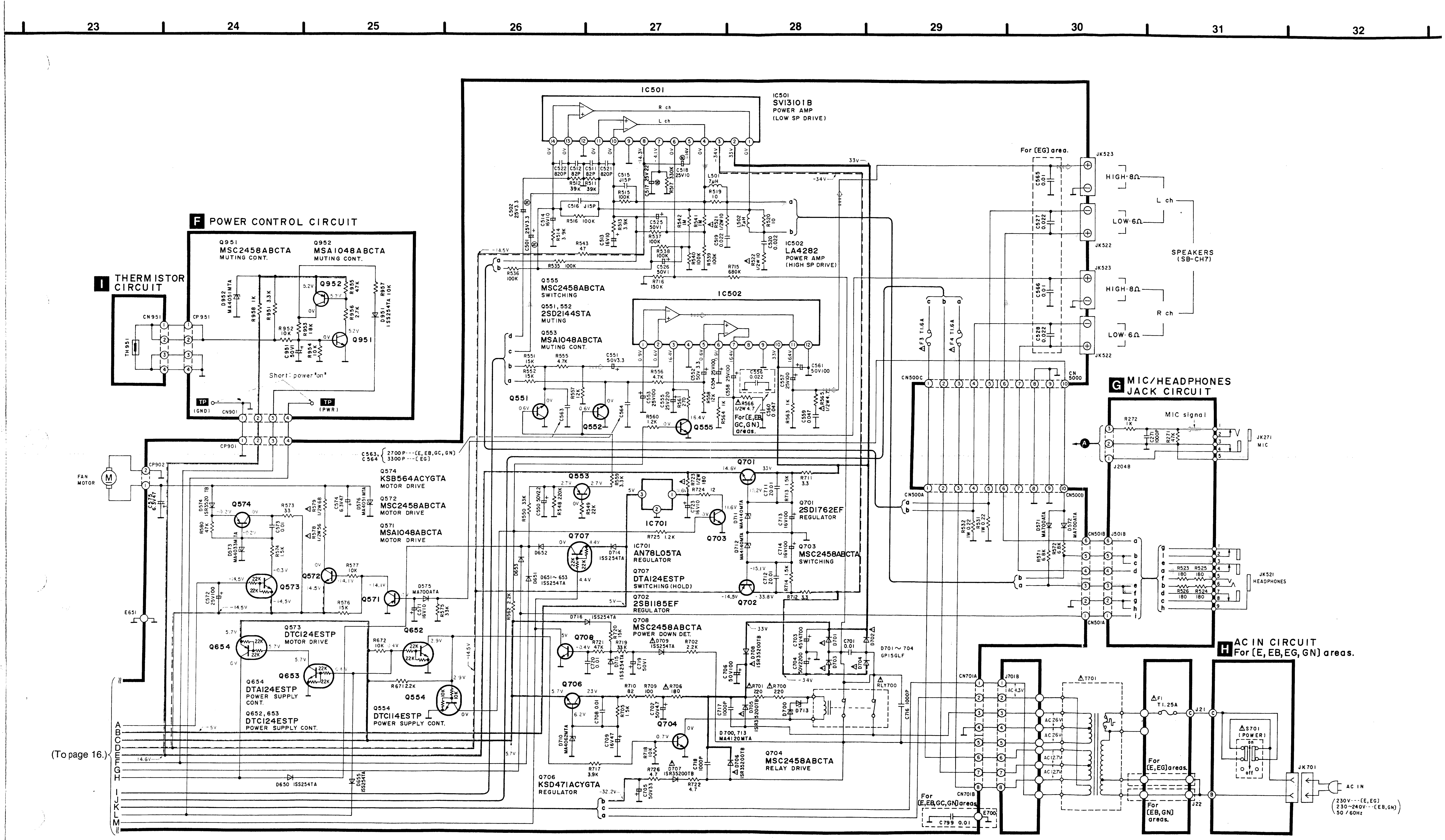
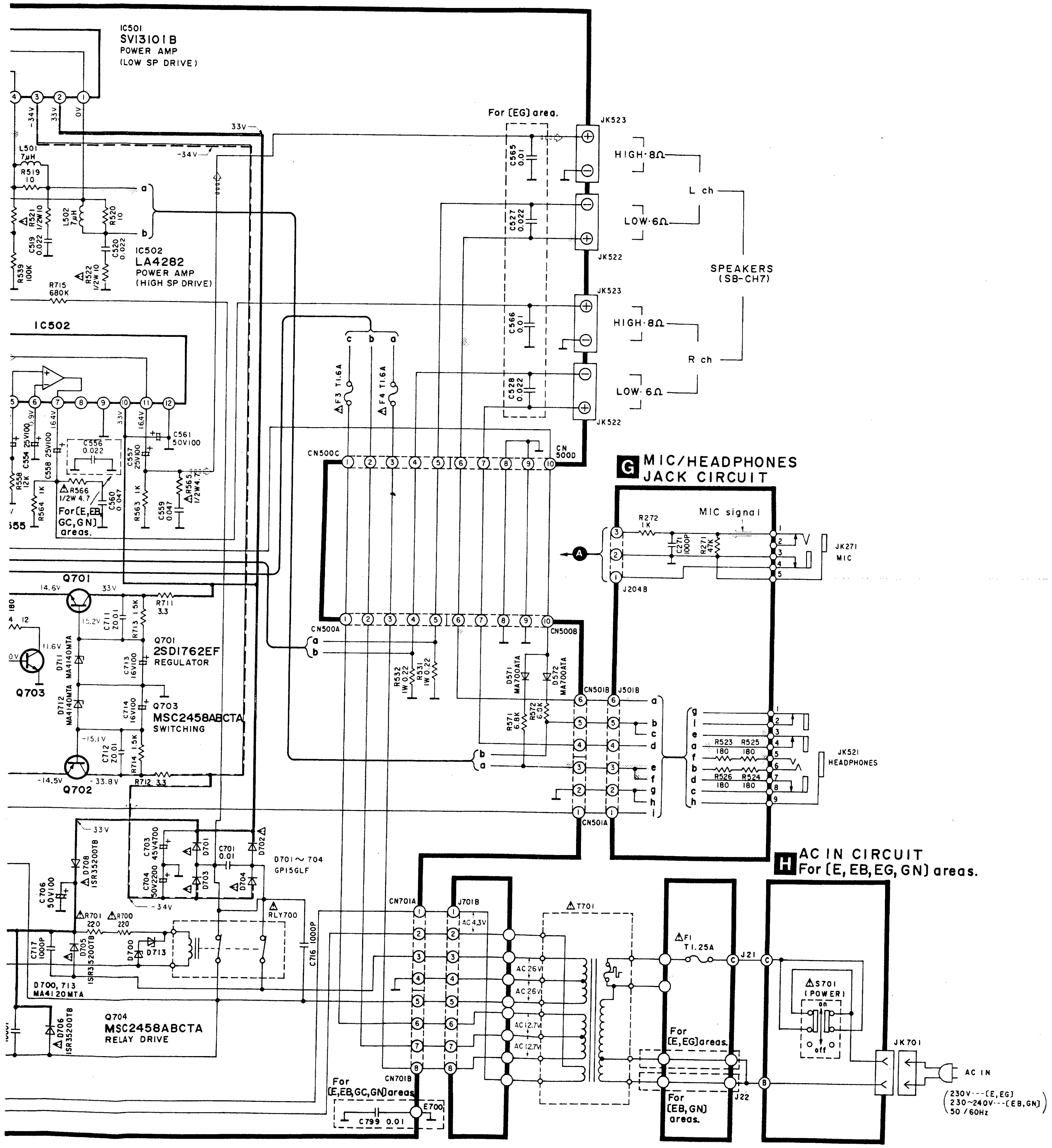
21
22
IC303 AN6554NSFE2 BAND PASS FILTER AMP
IC601 M50945-083SP MICRO COMPUTER
Q601 DTA124ESTP POWER SUPPLY
FL601 (RSL0079-F)
FL DISPLAY
Q609 MSC2458ABCTA FL DRIVE
D617 MA4043MTA···(E,EB,EG,GN) MA4030LTA···(GC)
Q615 2SB621AQRSTA REGULATOR
D625, 626 1SS254TA
D627, 628 MA4030LTA
VR601 (VOLUME)
VR602 (SOUND JOG)
Q602 DTC124ESTP RESET
IC602 BA4558FT1 VCA DRIVE
X601 (4.19MHz)
Super bass signal
IC402 BA4558FT1 BUFFER AMP
IC801 AN6554NSFE2 SUPER BASS AMP
IC804 AN6554NSFE2 FILTER AMP
Q813, 814 2SD2144STA S.BASS DRIVE
Q812 DTA114ESTP S.BASS DRIVE
Q817 DTA114ESTP MUTING CONT.
Q811 DTC124ESTP S.BASS DRIVE
IC803 BA4558FT1 BUFFER AMP
Q815, 816 MSC2458ABCTA MUTING
Hightone speaker drive signal
IC603 BU2040F-T2 DATA SELECTOR
CP604
CN604
CP605
CN605
CP606
CN606
Q603 DTC124ESTP LED DRIVE
D603 LN024428P
D603 (SUPER BASS)
Q613
Q611
Q610
D600, 620~622 LN873RP-LS
D624 (DAT)
D623 (TAPE)
D622 (CD)
D620 (TUNER)
D621 (PHONO)
D623, 624 LN173WP38
D600 (STAND-BY)
Q604, 610, 611, 613 DTA124ESTP LED DRIVE
Q604
Q607, 608 MSC2458ABCTA BUS LINE DRIVE
Q605, 606 DTC144ESTP BUS LINE DRIVE
S604 (TUNER)
S603 (CD)
S601 (TAPE)
S602 (PHONO)
S605 (DAT)
S606 (G.EQ ON/FLAT)
S607 (G.EQ MODE)
S609 (SPACE)
S608 (SPE.MODE)
S610 (S.BASS)
S611 (V.PRESET)
E OPERATION CIRCUIT
CP601
CN601
CP602
CN602
A
B
C
D
E
F
G
H
I
J
K
L
M
(To page 17.)


23
24
25
26
27
28
29
30
31
32
F POWER CONTROL CIRCUIT
Q951 MSC2458ABCTA MUTING CONT.
Q952 MSA1048ABCTA MUTING CONT.
I THERMISTOR CIRCUIT
TH951
CN951
CP951
CN901
CP901
TP (GND)
TP (PWR)
Short: power 'on'
FAN MOTOR
CP902
E651
IC501
R ch
L ch
IC501 SV13101B POWER AMP (LOW SP DRIVE)
IC502 LA4282 POWER AMP (HIGH SP DRIVE)
IC502
Q555 MSC2458ABCTA SWITCHING
Q551, 552 2SD2144STA MUTING
Q553 MSA1048ABCTA MUTING CONT.
Q551
Q552
Q555
For [E, EB, GC, GN] areas.
C563, C564 { 2700P---[E, EB, GC, GN] 3300P---[EG]
Q574 KSB564ACYGTA MOTOR DRIVE
Q572 MSC2458ABCTA MOTOR DRIVE
Q571 MSA1048ABCTA MOTOR DRIVE
Q574
Q573
Q572
Q571
Q553
Q573 DTC124ESTP MOTOR DRIVE
Q654
Q653
Q652
Q554
Q654 DTA124ESTP POWER SUPPLY CONT.
Q652, 653 DTC124ESTP POWER SUPPLY CONT.
Q554 DTC114ESTP POWER SUPPLY CONT.
D650 1SS254TA
D655 1SS254TA
D575 MA700ATA
Q707
IC701
IC701 AN78L05TA REGULATOR
Q707 DTA124ESTP SWITCHING (HOLD)
Q702 2SB1185EF REGULATOR
Q708 MSC2458ABCTA POWER DOWN DET.
D651~653 1SS254TA
D714 1SS254TA
D716 1SS254TA
Q701
Q703
Q702
Q701 2SD1762EF REGULATOR
Q703 MSC2458ABCTA SWITCHING
Q708
Q706
Q704
Q706 KSD471ACYGTA REGULATOR
Q704 MSC2458ABCTA RELAY DRIVE
D700, 713 MA4120MTA
D701~704 GP15GLF
RLY700
For (EG) area.
JK523
JK522
HIGH 8Ω
LOW 6Ω
L ch
R ch
SPEAKERS (SB-CH7)
F3 T1.6A
F4 T1.6A
CN500C
CN500D
CN500A
CN500B
G MIC/HEADPHONES JACK CIRCUIT
MIC signal
JK271 MIC
J204B
CN501B
J501B
CN501A
JK521 HEADPHONES
H AC IN CIRCUIT For (E, EB, EG, GN) areas.
CN701A
J701B
CN701B
T701
F1 T1.25A
For (E, EG) areas.
For (EB, GN) areas.
For (E, EB, GC, GN) areas.
C799 0.01
E700
J21
J22
S701 (POWER) on off
JK701
AC IN
230V---(E, EG)
230~240V---(EB, GN)
50 / 60Hz
(To page 16.)
A
B
C
D
E
F
G
H
I
J
K
L
M


IC501
SVI3101B
POWER AMP
(LOW SP DRIVE)
IC502
LA4282
POWER AMP
(HIGH SP DRIVE)
For [EG] area.
JK523
JK522
HIGH·8Ω
LOW·6Ω
L ch
R ch
SPEAKERS
(SB-CH7)
F3 T1.6A
F4 T1.6A
CN500C
CN5000
CN500A
CN500B
G MIC/HEADPHONES JACK CIRCUIT
MIC signal
JK271
MIC
J204B
JK521
HEADPHONES
CN501B
J501B
CN501A
Q701
2SD1762EF
REGULATOR
Q703
MSC2458ABCTA
SWITCHING
Q702
Q704
MSC2458ABCTA
RELAY DRIVE
D701~704
GP15GLF
RLY700
H AC IN CIRCUIT
For [E, EB, EG, GN] areas.
CN701A
J701B
CN701B
T701
F1 T1.25A
J21
J22
S701 (POWER)
on
off
JK701
AC IN
For [E,EG]areas.
For [EB,GN] areas.
For [E,EB,GC,GN]areas
E700
C799 0.01
(230V---[E,EG]
230~240V---[EB,GN]
50/60Hz)

Notes:

- •S601~605 : Input selector switch.
  (•S601: TAPE, S602: PHONO,
  S603: CD, S604: TUNER, S605: DAT)
- •S606 : Graphic EQ switch (ON/FLAT).
- •S607 : Equalization mode select switch (MODE-RECALL).
- •S608 : Spectrum mode select switch (-SPECTRUM MODE—DEMO).
- •S609 : Ambience enhancement switch (SPACE).
- •S610 : Super bass switch (SUPER BASS).
- •S611 : Volume preset switch (VOL. PRESET).
- •S700 : Voltage adjustment switch in "110~127 V" position.
  (110~127 V/220~240 V) for (GC) area only.
- •S701 : Power switch in "ON" position.

•Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

•Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

•This schematic diagram may be modified at any time with the development of new technology.

▬▬ : Positive voltage line
▪ ▪ ▪ ▪ : Negative voltage line
▨⇨ : Super bass signal line
□□□⇨ : Hightone speaker drive signal line

░░ : CD/PHONO signal (L ch) Line
▭⇨ : Rec out signal (L ch) Line
⇨ : Spectrum analyzer signal Line
⇨ : MIC signal Line
▥⇨ : Phase difference signal Line

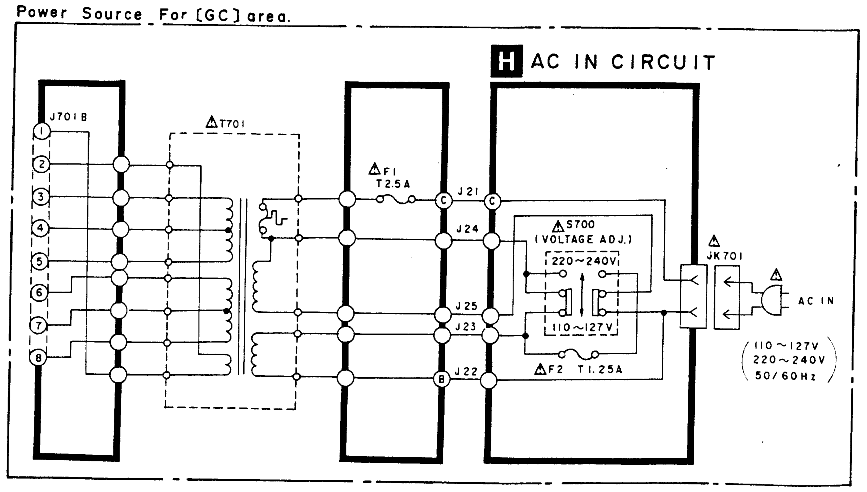
Caution!

•IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
•Cover the parts boxes made of plastics with aluminum foil.
•Ground the soldering iron.
•Put a conductive mat on the work table.
•Do not touch the legs of IC or LSI with the fingers directly.

•The supply part number is described alone in the replacement parts list.

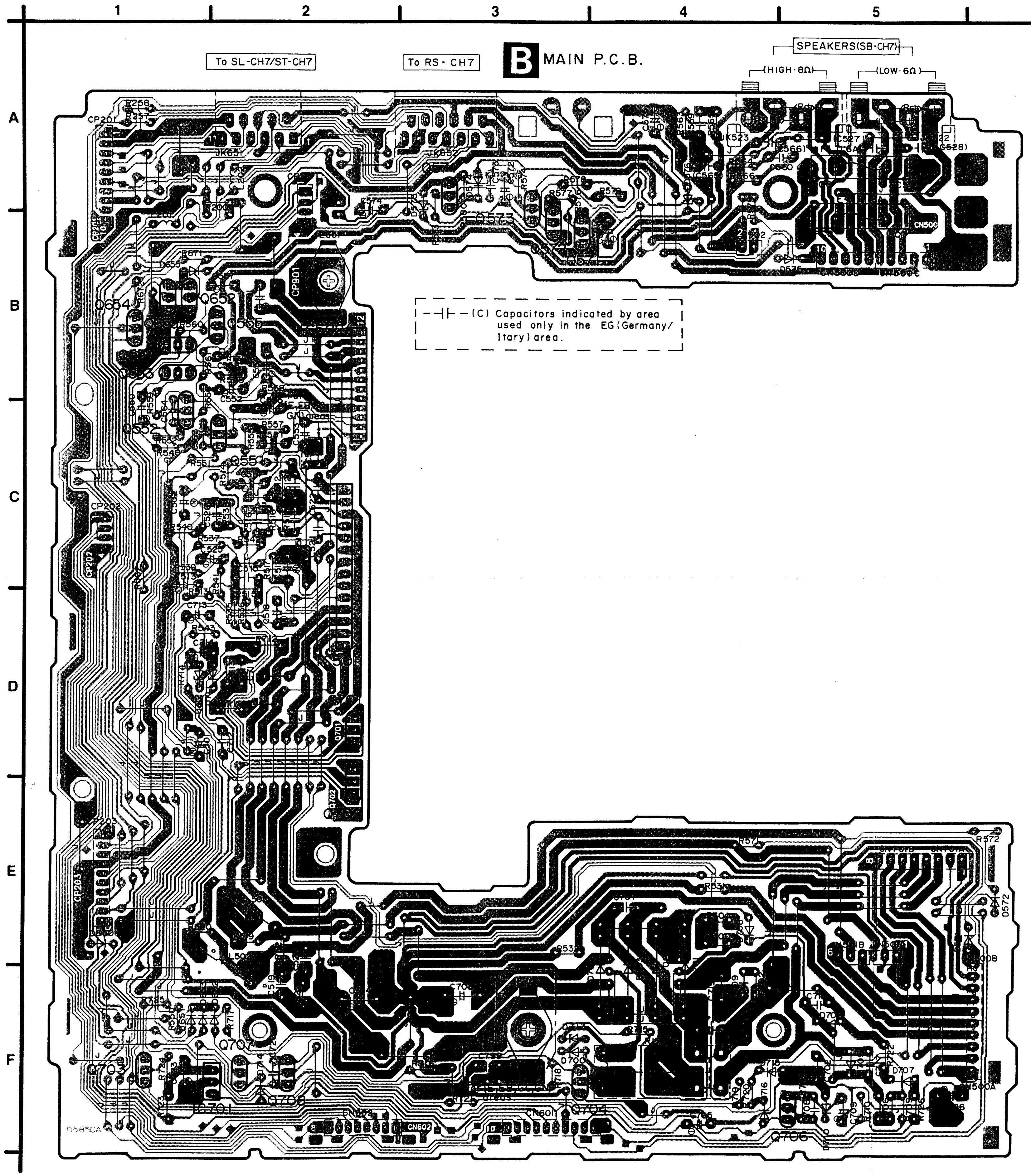
Ref No.	Production Parts No.	Supply Parts No.
IC402 IC403 IC1002	M5238P	M5238P-1

Power Source For [GC] area.


H AC IN CIRCUIT
J701B
T701
F1 T2.5A
J21
J24
J25
J23
J22
S700
(VOLTAGE ADJ.)
220~240V
110~127V
F2 T1.25A
JK701
AC IN
(110~127V
220~240V
50/60Hz)

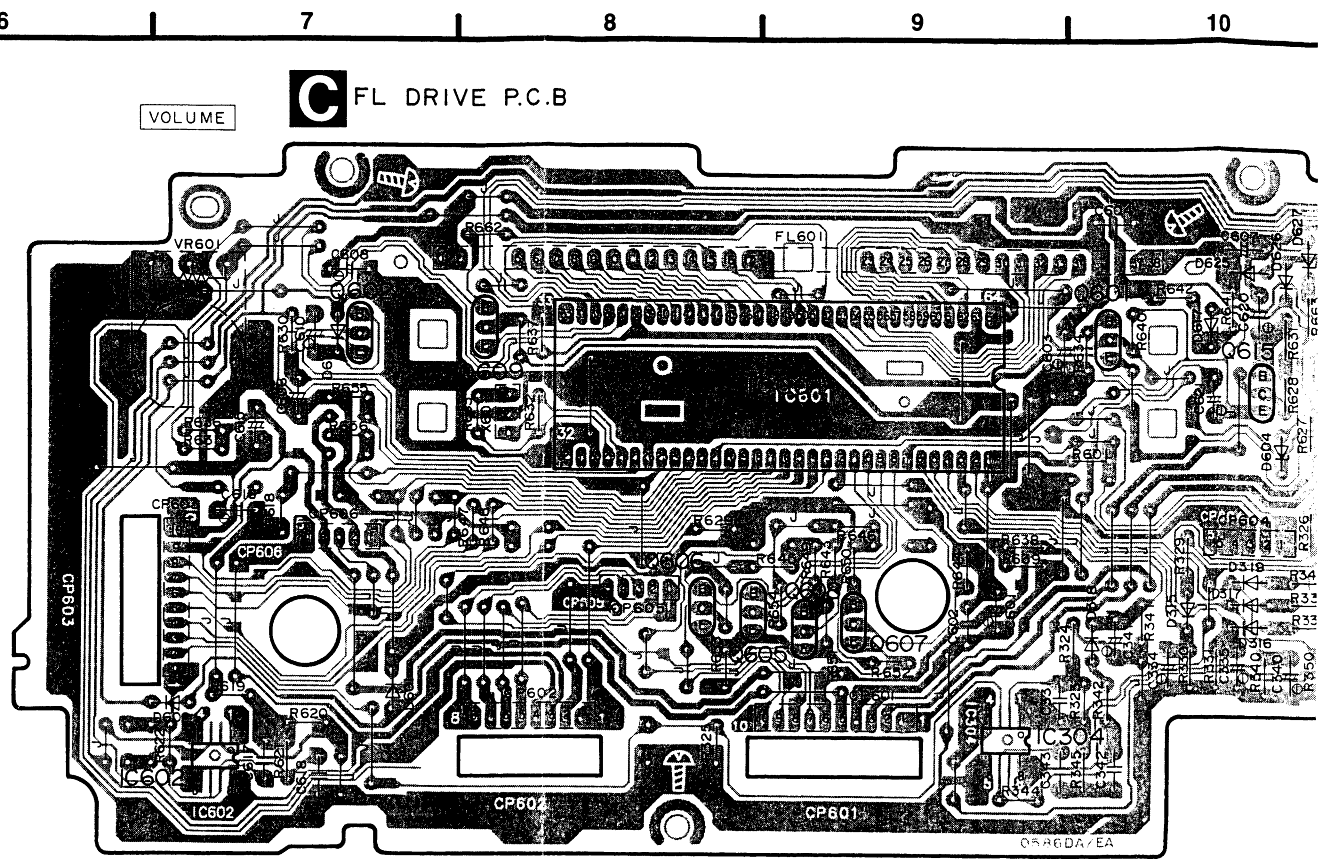
■ PRINTED CIRCUIT BOARDS (Parts list on pages 30~35.)

B MAIN P.C.B.

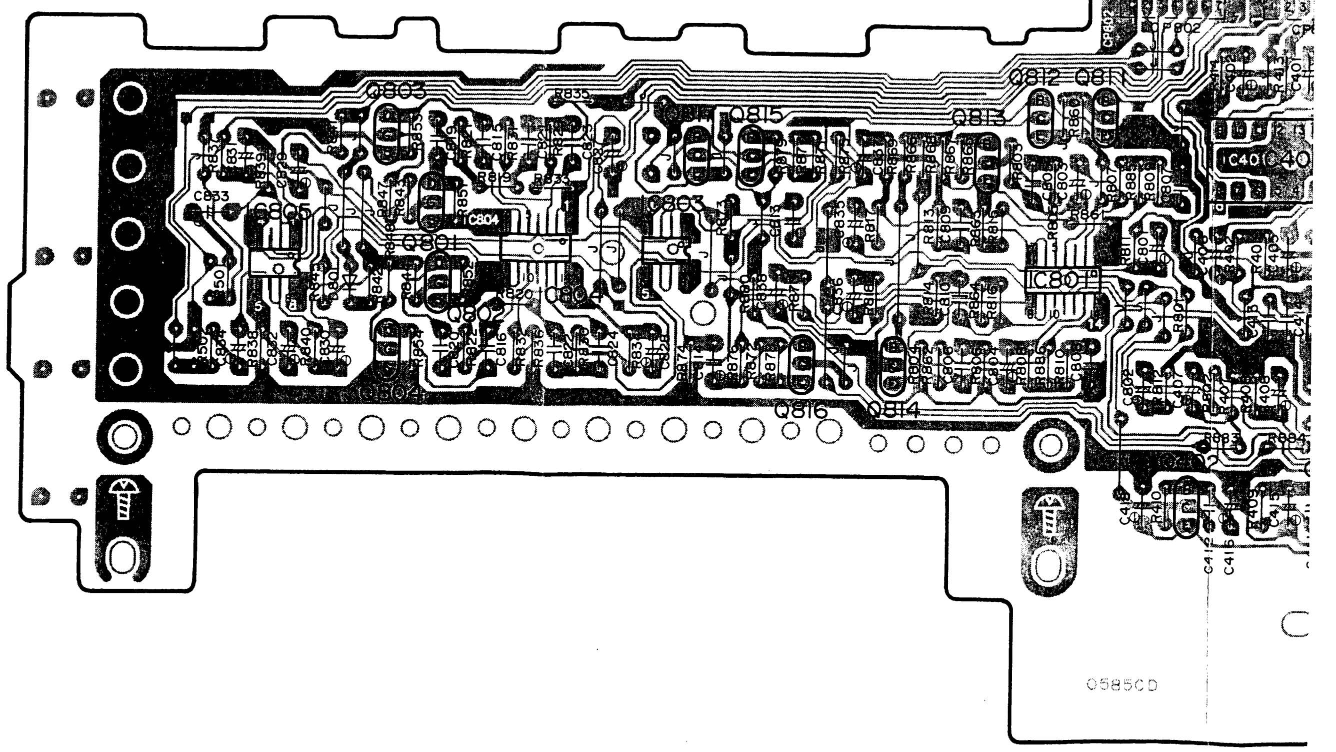

1
2
3
4
5
A
B
C
D
E
F
To SL-CH7/ST-CH7
To RS-CH7
SPEAKERS(SB-CH7)
(HIGH·8Ω)
(LOW·6Ω)
CP201
JK851
CN500
CP901
CP202
CP203
Q707
Q701
Q706
Q704
CN502
CN601
0585CA

—||— (C) Capacitors indicated by area used only in the EG (Germany/ Itary) area.

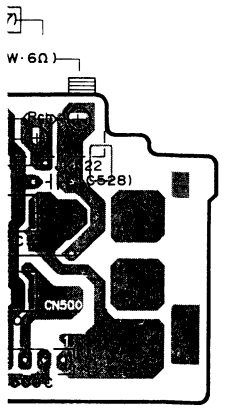
C FL DRIVE P.C.B.


6
7
8
9
10
VOLUME
VR601
FL601
IC601
CP603
CP606
CP605
CP602
CP601
IC502
IC304
Q607
0586DA/EA

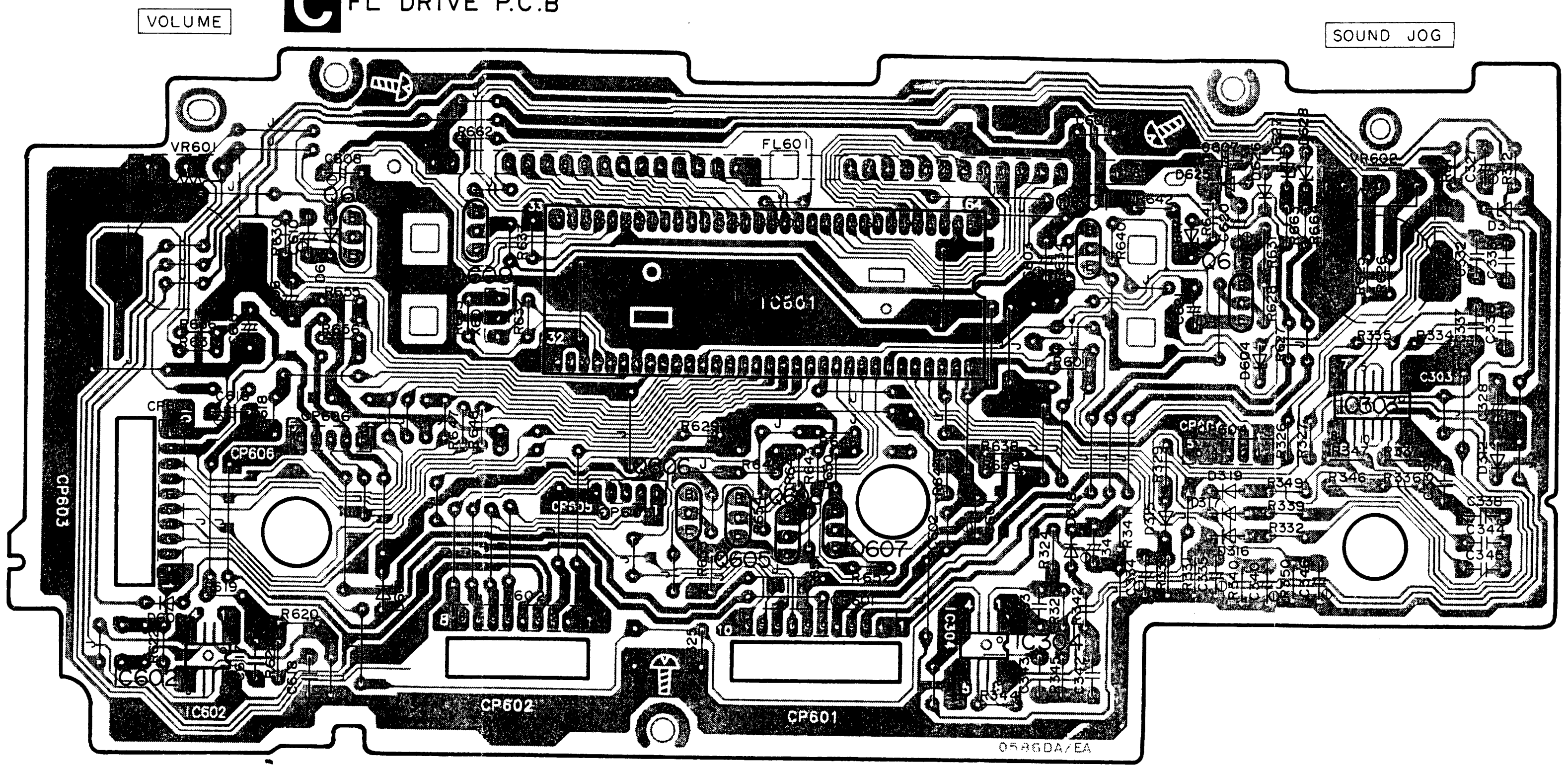
D VOLUME/FILTER AMP P.C.B.


Q803
Q815
Q812
Q811
Q813
Q801
Q816
Q814
C804
0585CD

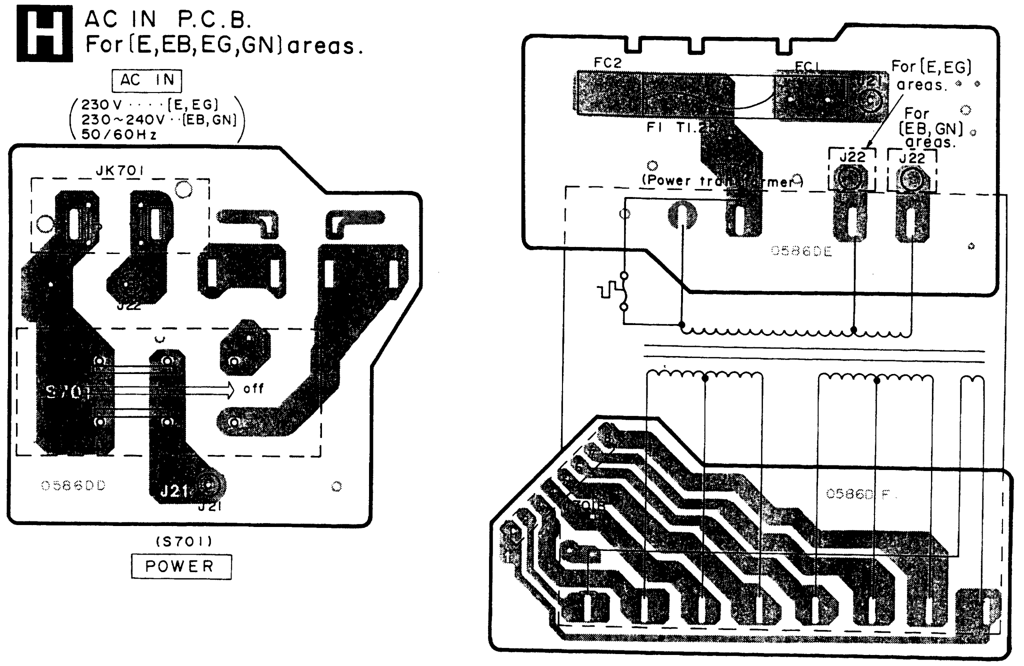
6 7 8 9 10 11 12 13 14 15



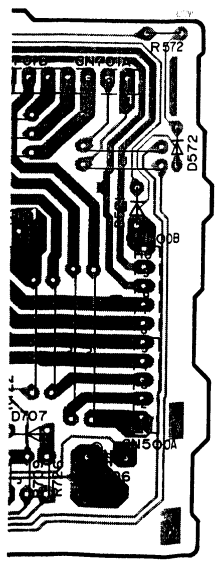
C FL DRIVE P.C.B

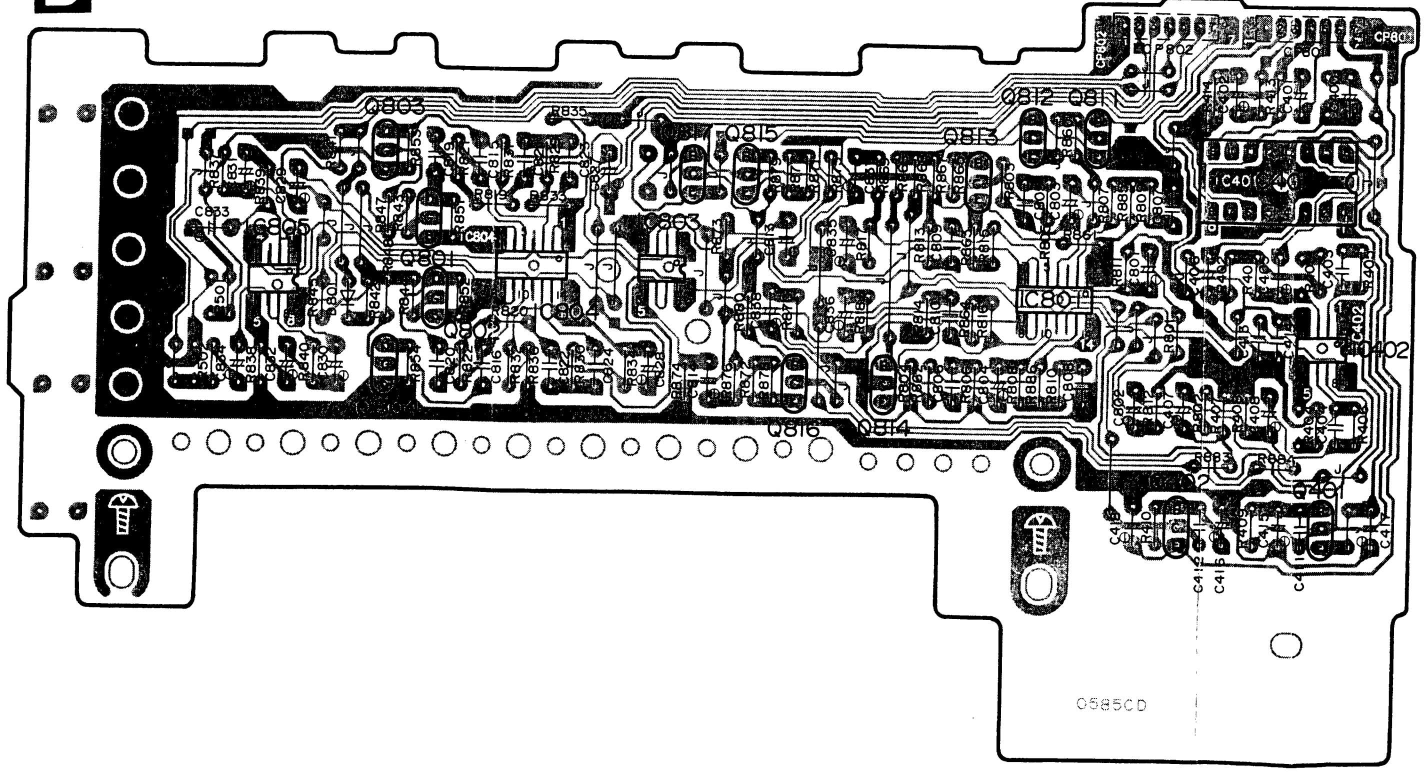

VOLUME
SOUND JOG
VR601
FL601
IC601
IC602
IC603
CP601
CP602
CP603
CP606
0586DA/EA

H AC IN P.C.B.
For (E, EB, EG, GN) areas.

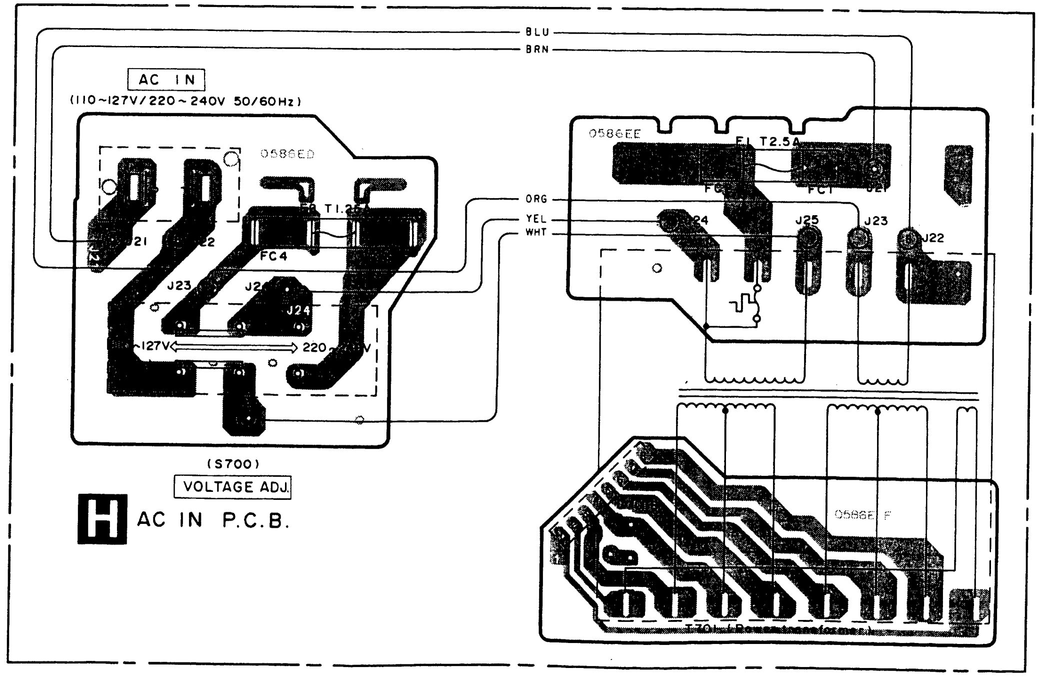

AC IN
230V ····· (E, EG)
230~240V ·· (EB, GN)
50/60Hz
JK701
S701
off
J21
J22
0586DD
(S701)
POWER
FC2
FC1
F1 T1.25A
For (E, EG) areas.
For (EB, GN) areas.
J22
(Power transformer)
0586DE
0586DF

D VOLUME/FILTER AMP P.C.B.

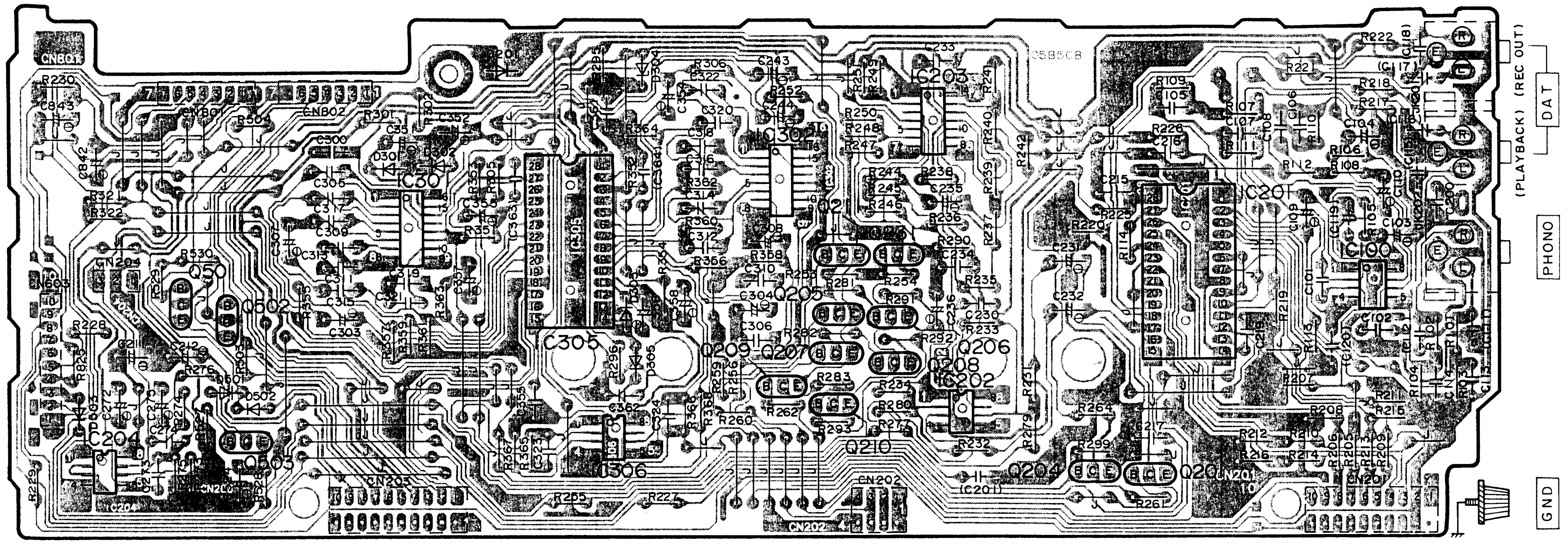

R572
CN701A
D707
CN500A


Q803
Q812
Q811
Q815
Q813
Q801
Q816
Q814
IC401
IC801
IC402
CP801
CP802
0585CD

Power Source For (GC) area.

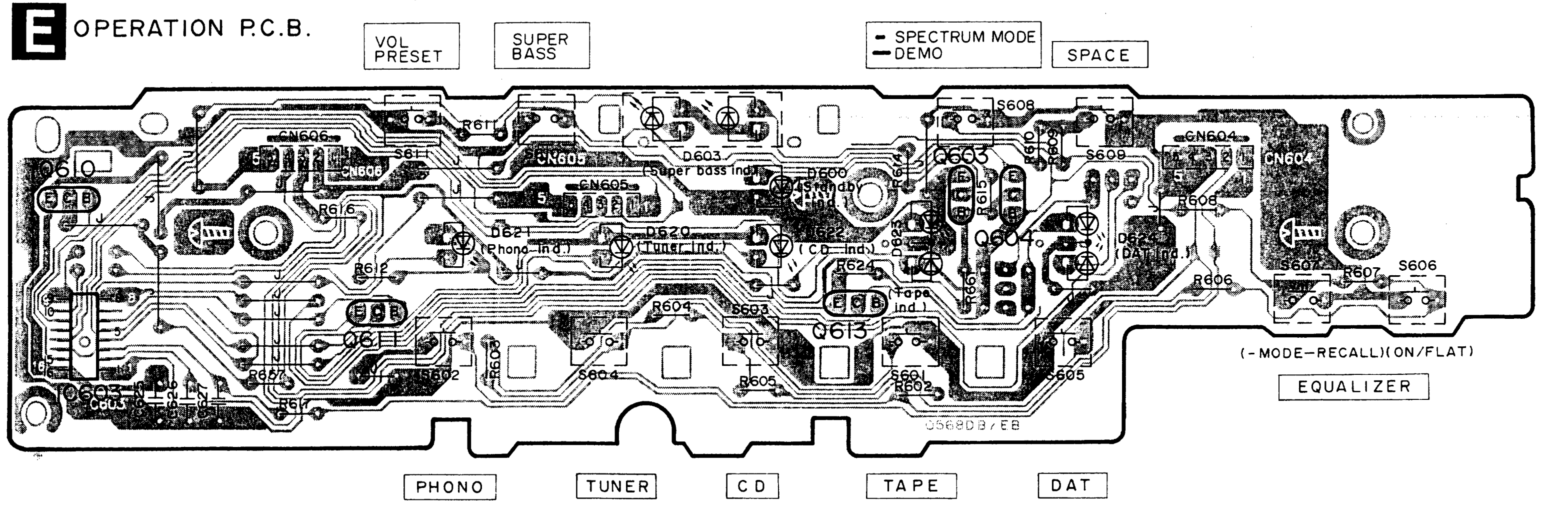

BLU
BRN
AC IN
(110~127V/220~240V 50/60Hz)
0586ED
0586EE
F1 T1.25A
F1 T2.5A
FC4
FC1
ORG
YEL
WHT
J21
J22
J23
J24
J25
127V
220~240V
(S700)
VOLTAGE ADJ.
H AC IN P.C.B.
0586FF
T301 (Power transformer)

A INPUT/ OUTPUT TERMINAL P.C.B.

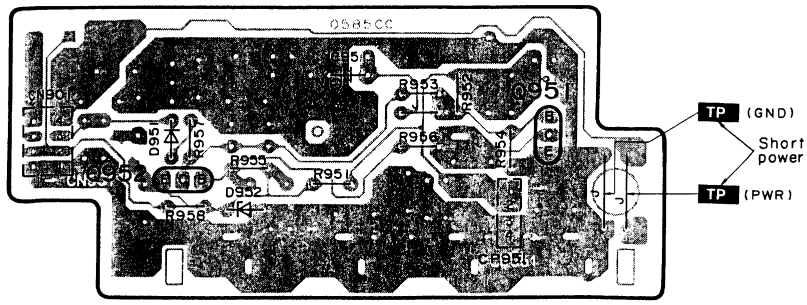

(PLAYBACK) (REC OUT)
DAT
PHONO
GND
CN801
CN802
CN201
CN202
CN203
CN204
IC201
IC100
IC301
IC302
IC305
IC306

-||-(C) Capacitors indicated by area used only in the EG (Germany/ Itary) area.

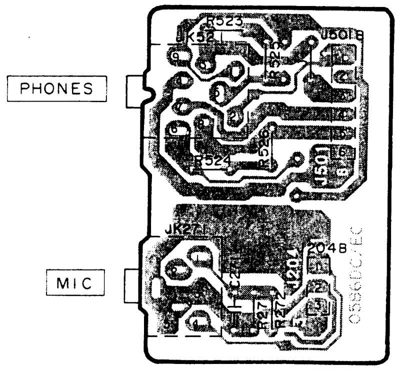
E OPERATION P.C.B.


VOL PRESET
SUPER BASS
- SPECTRUM MODE
—DEMO
SPACE
(-MODE-RECALL)(ON/FLAT)
EQUALIZER
PHONO
TUNER
CD
TAPE
DAT

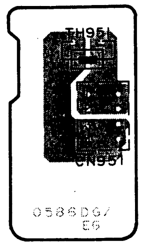
F POWER CONTROL P.C.B.


TP (GND)
Short: power "on"
TP (PWR)

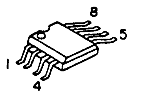
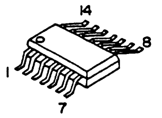
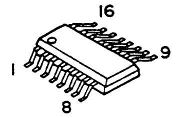
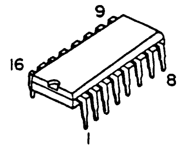
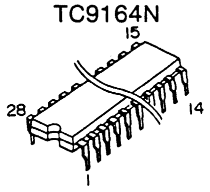
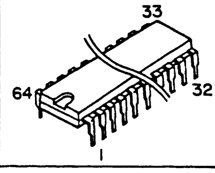
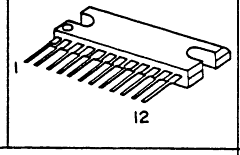
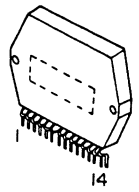
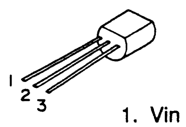
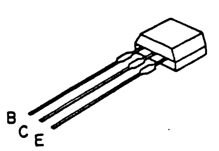
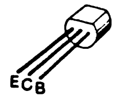
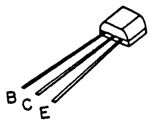
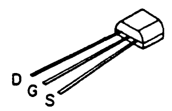
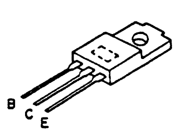
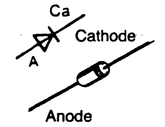
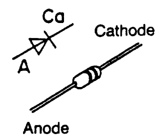
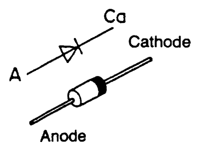
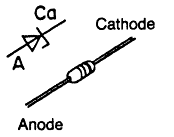
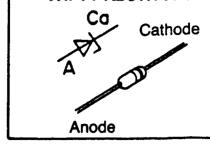
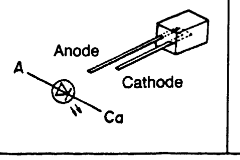
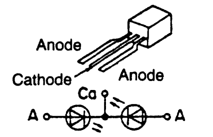
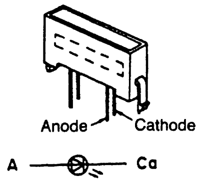
G MIC/HEADPHONES JACK P.C.B.



I THERMISTOR P.C.B.

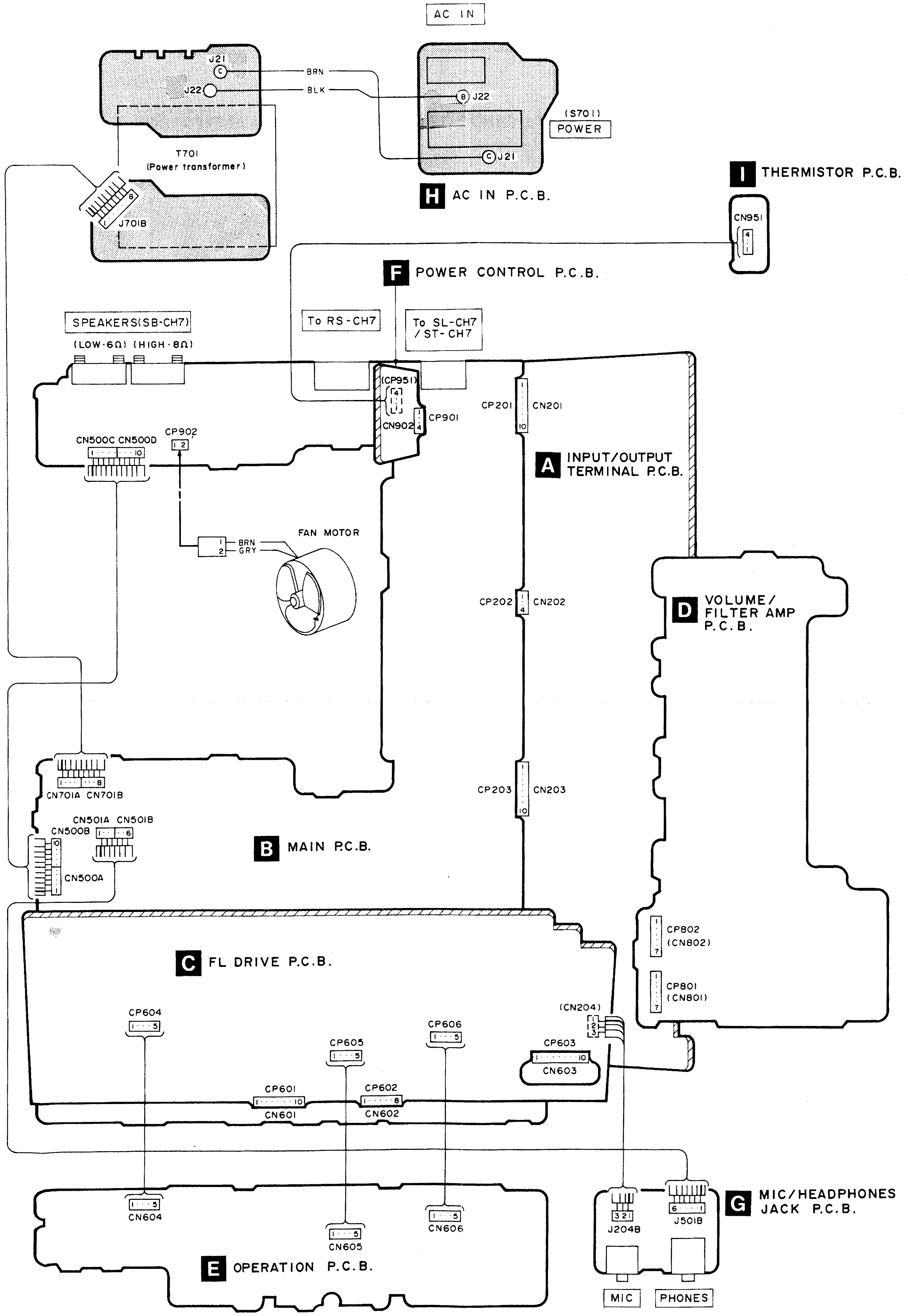


•TERMINAL GUIDE OF IC'S TRANSISTORS AND DIODES

BA4558FT1 AN6558SFE2 	AN6554NSFE2 	BU2040F-T2 M5226FPE2 	M5283P 
LC7522 TC9164N 	M50945-083SP 	LA4282 	SVI3100B 
AN78L05TA  1. Vin 2. GND 3. Vout		DTA114ESTP DTC114ESTP DTA124ESTP DTC124ESTP DTC144ESTP 2SD2144STA	KSB564ACYGTA KSD471ACYGTA 2SB621AQRSTA 
MSA1048ABCTA MSC2458ABCTA 	2SJ40CDTA 	2SB1185EF 2SD1762EF 	MA700ATA 1SS254TA 1SR35200TB 
1SS291TA 	GP15GLF 		MA4033MTA MA4043MTA MA4051MTA MA4062MTA MA4068MTA MA4030LTA
MA4140MTA MA4300MTA MA4120MTA 	LN873RP-LS 	LN173WP38 	LN024428P 

1 4 5 8
1 7 14 8
1 8 16 9
16 9 8 1
15 28 14 1
33 64 32 1
1 12
1 14
1 2 3
B C E
E C B
B C E
D G S
B C E
Ca Cathode A Anode
Ca Cathode A Anode
Ca Cathode A Anode
Ca Cathode A Anode
Ca Cathode A Anode
Anode A Cathode Ca
Anode Cathode Ca A Ca A
Anode Cathode A Ca

■ WIRING CONNECTION DIAGRAM

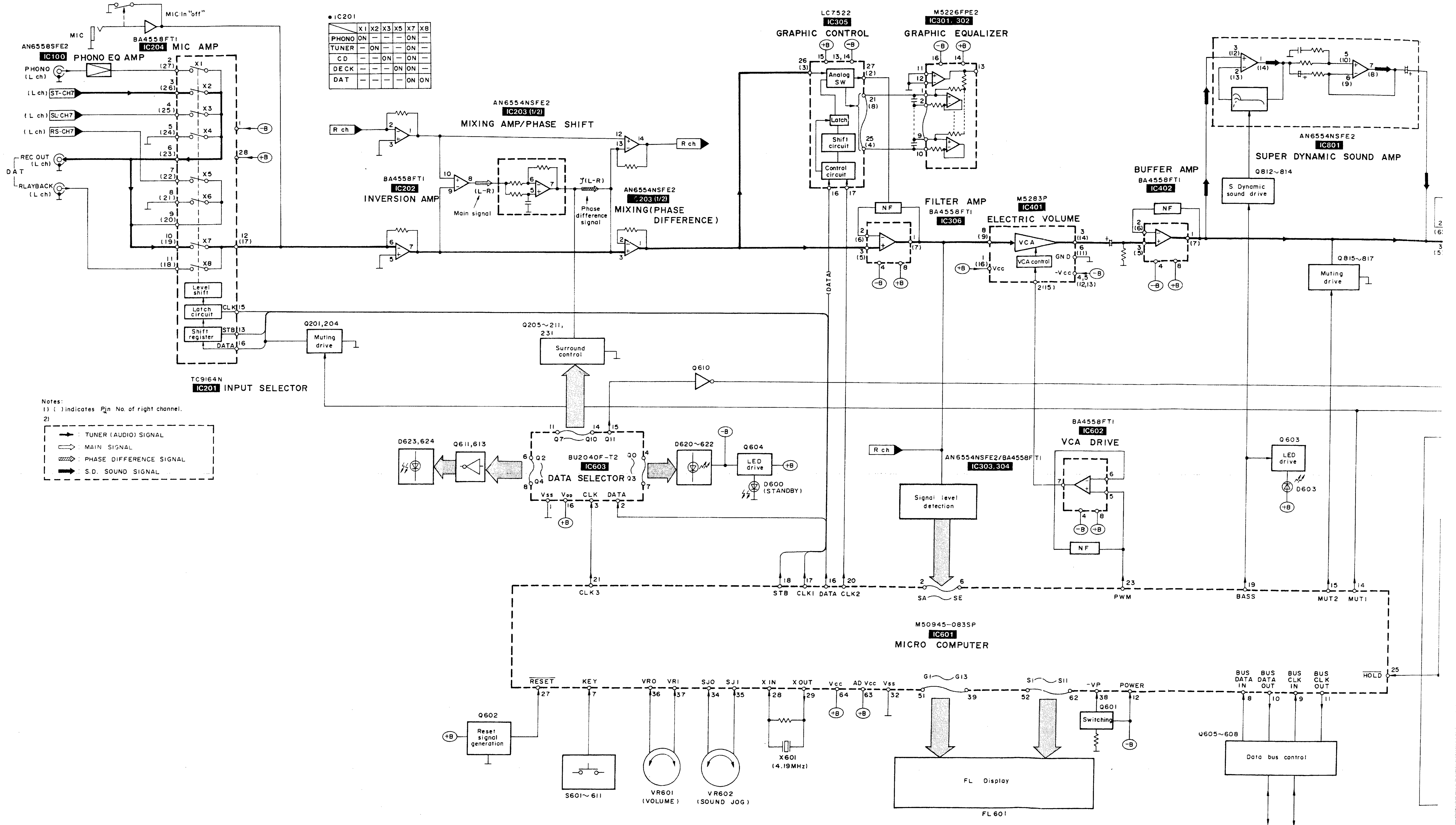

AC IN
J21
J22
BRN
BLK
(S701)
POWER
T701
(Power transformer)
J701B
H AC IN P.C.B.
I THERMISTOR P.C.B.
CN951
F POWER CONTROL P.C.B.
To RS-CH7
To SL-CH7 / ST-CH7
SPEAKERS(SB-CH7)
(LOW·6Ω) (HIGH·8Ω)
(CP951)
CN902
CP901
CP201
CN201
A INPUT/OUTPUT TERMINAL P.C.B.
CN500C CN500D
CP902
FAN MOTOR
BRN
GRY
CP202
CN202
D VOLUME/ FILTER AMP P.C.B.
CN701A CN701B
CP203
CN203
CN501A CN501B
CN500B
CN500A
B MAIN P.C.B.
CP802 (CN802)
CP801 (CN801)
C FL DRIVE P.C.B.
CP604
CP605
CP606
(CN204)
CP603
CN603
CP601
CN601
CP602
CN602
CN604
CN605
CN606
E OPERATION P.C.B.
G MIC/HEADPHONES JACK P.C.B.
J204B
J501B
MIC
PHONES

■ FUNCTIONS OF IC TERMINALS

•IC601 (M5D945-083SP)

Pin No.	Mark	I/O Division	Function
1	VREF	I	Connected to A/D converter reference voltage VCC
2 ~ 6	SA ~ SE	I	Spectrum analyser input A~E A/D input
7	KEY	I	Key input
8	BUS DATA IN	I	External control data signal input
9	BUS CLK IN	I	External control clock signal input
10	BUS DATA OUT	O	External control data signal output
11	BUS CLK OUT	O	External control clock signal output
12	POWER	I	Input for power ON/OFF detection
13	$\overline{\text{VCR}}$	O	Image signal switch output
14	MUT1	O	Muting output "H" level when mute is on mode
15	MUT 2	O	−10 dB muting output
16	DATA	O	Serial data output
17	CLK1	O	Clock output extracted from serial data
18	STB	O	Serial clock strobe
19	BASS	O	Super bass indicator motor Super bass sound control signal output
20	CLK2	O	Clock output for graphic equalizer and extracted serial data
21	CLK3	O	FL display output
22 • 24	CS1 • CS2	—	Connected GND
23	PWM	I	Electric volume control PWM output
25	$\overline{\text{HOLD}}$	I	Hold mode detection signal input
26	G	—	Connected to GND
27	$\overline{\text{RESET}}$	I	Reset input
28 • 29	X•IN X•OUT	I/O	Clock input–output Connected to oscillator (X601) (4.19 kHz)
30	XC IN	I	Connectd to GND
31	XC OUT	O	Not connected
32	VSS	—	Connected to GND
33	NC	—	Not connected
34 • 35	SJ0 • SJ1	I	Sound jog input
36 • 37	VR0 • VR1	I	Encoder VR input
38	− VP	I	Pull down voltage input for FL
39 ~ 51	G13 ~ G1	O	Grid output for FL
52 ~ 62	S1 ~ S11	O	Segment output for FL
63	AD VCC	I	A/D converter reference voltage
64	VCC	I	Power supply

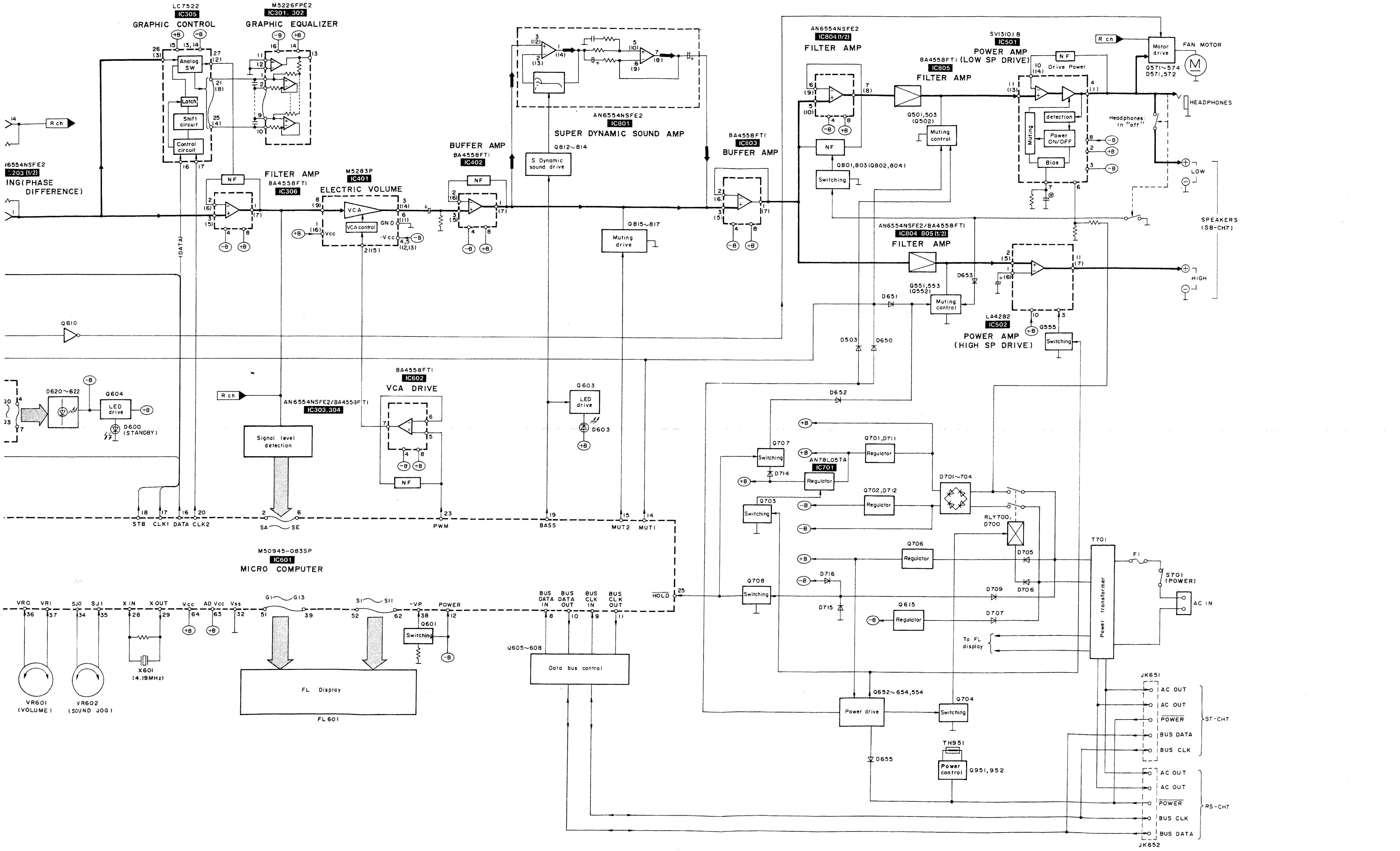
■ BLOCK DIAGRAM


MIC
MIC:In "off"
AN6558SFE2
IC100 PHONO EQ AMP
BA4558FT1
IC204 MIC AMP
PHONO (L ch)
(L ch) ST-CH7
(L ch) SL-CH7
(L ch) RS-CH7
REC OUT (L ch)
DAT
PLAYBACK (L ch)
X1
X2
X3
X4
X5
X6
X7
X8
Level shift
Latch circuit
Shift register
CLK
STB
DATA
TC9164N
IC201 INPUT SELECTOR
Q201,204
Muting drive
R ch
BA4558FT1
IC202
INVERSION AMP
(L-R)
Main signal
AN6554NSFE2
IC203 (1/2)
MIXING AMP/PHASE SHIFT
𝒥(L-R)
Phase difference signal
MIXING (PHASE DIFFERENCE)
Q205~211, 231
Surround control
Q610
D623,624
Q611,613
BU2040F-T2
IC603
DATA SELECTOR
Q7~Q10 Q11
Vss VDD CLK DATA
D620~622
Q604
LED drive
D600 (STANDBY)
LC7522
IC305
GRAPHIC CONTROL
Analog SW
Latch
Shift circuit
Control circuit
(DATA)
M5226FPE2
IC301, 302
GRAPHIC EQUALIZER
NF
FILTER AMP
BA4558FT1
IC306
M5283P
IC401
ELECTRIC VOLUME
VCA
VCA control
GND
Vcc
-Vcc
BUFFER AMP
BA4558FT1
IC402
AN6554NSFE2
IC801
SUPER DYNAMIC SOUND AMP
Q812~814
S Dynamic sound drive
Q815~817
Muting drive
BA4558FT1
IC602
VCA DRIVE
Q603
LED drive
D603
R ch
AN6554NSFE2/BA4558FT1
IC303, 304
Signal level detection
CLK3
STB CLK1 DATA CLK2
SA~SE
PWM
BASS
MUT2 MUT1
M50945-083SP
IC601
MICRO COMPUTER
RESET KEY VR0 VR1 SJ0 SJ1 X IN X OUT Vcc AD Vcc Vss
G1~G13
S1~S11
-VP POWER
BUS DATA IN
BUS DATA OUT
BUS CLK IN
BUS CLK OUT
HOLD
Q602
Reset signal generation
S601~611
VR601 (VOLUME)
VR602 (SOUND JOG)
X601 (4.19MHz)
FL Display
FL601
Q601
Switching
Q605~608
Data bus control

● IC201

	X1	X2	X3	X5	X7	X8
PHONO	ON	—	—	—	ON	—
TUNER	—	ON	—	—	ON	—
CD	—	—	ON	—	ON	—
DECK	—	—	—	ON	ON	—
DAT	—	—	—	—	ON	ON

Notes:
1) ( ) indicates Pin No. of right channel.
2)
- ➞ : TUNER (AUDIO) SIGNAL
- ⇨ : MAIN SIGNAL
- ▨ : PHASE DIFFERENCE SIGNAL
- ➡ : S.D. SOUND SIGNAL


LC7522
IC305
GRAPHIC CONTROL
M5226FPE2
IC301, 302
GRAPHIC EQUALIZER
Analog SW
Latch
Shift circuit
Control circuit
(DATA)
Rch
6554NSFE2
203 (1/2)
ING (PHASE DIFFERENCE)
FILTER AMP
BA4558FTI
IC306
NF
M5283P
IC401
ELECTRIC VOLUME
VCA
VCA control
GND
-Vcc
Vcc
BUFFER AMP
BA4558FTI
IC402
AN6554NSFE2
IC801
SUPER DYNAMIC SOUND AMP
Q812~814
S. Dynamic sound drive
Q815~817
Muting drive
BA4558FTI
IC803
BUFFER AMP
AN6554NSFE2
IC804 (1/2)
FILTER AMP
BA4558FTI (LOW SP DRIVE)
IC805
FILTER AMP
SVI3101B
IC501
POWER AMP
Q501,503 (Q502)
Muting control
Q801,803 (Q802,804)
Switching
Drive Power
detection
Power ON/OFF
Muting
Bias
Motor drive
FAN MOTOR
Q571~574
Q571,572
HEADPHONES
Headphones: In "off"
LOW
HIGH
SPEAKERS (SB-CH7)
AN6554NSFE2/BA4558FTI
IC804 805 (1/2)
FILTER AMP
Q551,553 (Q552)
Muting control
D651
D653
LA4282
IC502
POWER AMP (HIGH SP DRIVE)
Q555
Switching
D503
D650
Q610
D620~622
Q604
LED drive
D600 (STANDBY)
AN6554NSFE2/BA4558FTI
IC303,304
Signal level detection
BA4558FTI
IC602
VCA DRIVE
Q603
LED drive
D603
D652
Q707
Switching
D714
Q701,D711
Regulator
AN78L05TA
IC701
Regulator
Q703
Switching
Q702,D712
Regulator
D701~704
RLY700, D700
D705
Q706
Regulator
T701
Power transformer
F1
S701 (POWER)
AC IN
D716
D715
Q708
Switching
D709
D706
Q615
Regulator
D707
To FL display
STB CLK1 DATA CLK2
SA SE
PWM
BASS
MUT2 MUT1
M50945-083SP
IC601
MICRO COMPUTER
HOLD
VR0 VR1 SJ0 SJ1 X IN X OUT Vcc AD Vcc Vss
G1~G13
S1~S11
-VP
POWER
Q601
Switching
BUS DATA IN
BUS DATA OUT
BUS CLK IN
BUS CLK OUT
Q605~608
Data bus control
X601 (4.19MHz)
VR601 (VOLUME)
VR602 (SOUND JOG)
FL Display
FL601
Power drive
Q652~654,554
Q704
Switching
D655
TH951
Power control
Q951,952
JK651
AC OUT
AC OUT
POWER
BUS DATA
BUS CLK
ST-CH7
AC OUT
AC OUT
POWER
BUS CLK
BUS DATA
RS-CH7
JK652

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* Remote Control Ass'y:
Supply period for three years from termination of production.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC100	AN6558SFE2	I. C, PHONO EQ. AMP.	
IC201	TC9164N	I. C, INPUT SELECTOR	
IC202	SVIBA4558F	I. C, INVERSION AMP.	
IC203	AN6554NSFE2	I. C, MIX/PHASE AMP.	
IC204	SVIBA4558F	I. C, MIC AMP.	
IC301, 302	M5226FPE2	I. C, G. EQ AMP.	
IC303	AN6554NSFE2	I. C, B. P. F. AMP.	
IC304	SVIBA4558F	I. C, B. P. F. AMP.	
IC305	LC7522	I. C, BAND LEVEL CONT.	
IC306	SVIBA4558F	I. C, FILTER AMP.	
IC401	M5283P	I. C, E. VOLUME	
IC402	SVIBA4558F	I. C, BUFFER AMP.	
IC501	SVI3101B	I. C, POWER AMP.	
IC502	LA4282	I. C, POWER AMP.	
IC601	M50945-083SP	I. C, MICRO COMPUTER	
IC602	SVIBA4558F	I. C, VCA DRIVE	
IC603	BU2040F-T2	I. C, DATA SELECTOR	
IC701	AN78L05TA	I. C, REGULATOR	
IC801	AN6554NSFE2	I. C, SUPER BASS AMP.	
IC803	SVIBA4558F	I. C, BUFFER AMP.	
IC804	AN6554NSFE2	I. C, FILTER AMP.	
IC805	SVIBA4558F	I. C, FILTER AMP.	
		TRANSISTOR(S)	
Q201	MSC2458ABCTA	TRANSISTOR	
Q204	MSC2458ABCTA	TRANSISTOR	
Q205	DTA124ESTP	TRANSISTOR	
Q206	MSC2458ABCTA	TRANSISTOR	
Q207	DTA124ESTP	TRANSISTOR	
Q208	MSC2458ABCTA	TRANSISTOR	
Q209	DTA124ESTP	TRANSISTOR	
Q210	MSC2458ABCTA	TRANSISTOR	
Q211	DTA124ESTP	TRANSISTOR	
Q231	2SD2144S	TRANSISTOR	
Q401	MSC2458ABCTA	TRANSISTOR	
Q402	MSA1048ABCTA	TRANSISTOR	
Q501, 502	2SD2144S	TRANSISTOR	
Q503	MSA1048ABCTA	TRANSISTOR	
Q551, 552	2SD2144S	TRANSISTOR	
Q553	MSA1048ABCTA	TRANSISTOR	
Q554	DTC114ESTP	TRANSISTOR	
Q555	MSC2458ABCTA	TRANSISTOR	
Q571	MSA1048ABCTA	TRANSISTOR	
Q572	MSC2458ABCTA	TRANSISTOR	
Q573	DTC124EST	TRANSISTOR	
Q574	KSB564ACYGTA	TRANSISTOR	
Q601	DTA124ESTP	TRANSISTOR	
Q602, 603	DTC124EST	TRANSISTOR	
Q604	DTA124ESTP	TRANSISTOR	
Q605, 606	DTC144EKT96	TRANSISTOR	
Q607-609	MSC2458ABCTA	TRANSISTOR	
Q610, 611	DTA124ESTP	TRANSISTOR	
Q613	DTA124ESTP	TRANSISTOR	
Q615	2SB621A-R	TRANSISTOR	
Q652, 653	DTC124EST	TRANSISTOR	
Q654	DTA124ESTP	TRANSISTOR	
Q701	2SD1762EF	TRANSISTOR	
Q702	2SB1185EF	TRANSISTOR	
Q703, 704	MSC2458ABCTA	TRANSISTOR	
Q706	KSD471ACYGTA	TRANSISTOR	
Q707	DTA124ESTP	TRANSISTOR	
Q708	MSC2458ABCTA	TRANSISTOR	
Q801-804	2SJ40CDTA	TRANSISTOR	
Q811	DTC124EST	TRANSISTOR	
Q812	DTA114ESTP	TRANSISTOR	
Q813, 814	2SD2144S	TRANSISTOR	
Q815, 816	MSC2458ABCTA	TRANSISTOR	
Q817	DTA114ESTP	TRANSISTOR	
Q951	MSC2458ABCTA	TRANSISTOR	
Q952	MSA1048ABCTA	TRANSISTOR	
		DIODE(S)	
D201	1SS254TA	DIODE	
D301-303	1SS254TA	DIODE	
D304, 305	MA4068M	DIODE	
D311, 312	MA4068M	DIODE	
D315, 316	MA700	DIODE	
D317-319	1SS254TA	DIODE	
D501-503	1SS254TA	DIODE	
D571, 572	MA700	DIODE	
D573	MA4033TA	DIODE	
D574	1SR35200TB	DIODE	⚠
D575	MA700	DIODE	
D576	MA4051MTA	DIODE	
D600	LN873RP-LS	DIODE	
D601	1SS254TA	DIODE	
D602	1SS291TA	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D603	LN024428P	DIODE	
D604	MA4300M	DIODE	
D614	1SS254TA	DIODE	
D617	MA4043M	DIODE	(E, EB, EG, GN)
D617	MA4030LTA	DIODE	(GC)
D620-622	LN873RP-LS	DIODE	
D623, 624	LN173WP38	DIODE	
D625, 626	1SS254TA	DIODE	
D627, 628	MA4030LTA	DIODE	
D650-653	1SS254TA	DIODE	
D655	1SS254TA	DIODE	
D700	MA4120	DIODE	
D701-704	GP15GLF	DIODE	⚠
D705-708	1SR35200TB	DIODE	⚠
D709	1SS254TA	DIODE	
D710	MA4062MTA	DIODE	
D711, 712	MA4140M	DIODE	
D713	MA4120	DIODE	
D714-716	1SS254TA	DIODE	
D801	1SS254TA	DIODE	
D951	1SS254TA	DIODE	
D952	MA4051MTA	DIODE	
		VARIABLE RESISTOR(S)	
VR601	EVQWQAF2524B	V. R, VOLUME CONTROL	
VR602	EVQWQAF2524B	V, R, SOUND JOG	
		THERMISTOR(S)	
TH951	SRPBD47101	THERMISTOR	
		COIL(S)	
L201, 202	ELEXT101KA9	COIL	
L501, 502	SLQY07G-40	COIL	
		TRANSFORMER(S)	
T701	RTP1M5B006	POWER TRANSFORMER	⚠ (E, EB, EG, GN)
T701	RTP1M5E010	POWER TRANSFORMER	⚠ (GC)
		OSCILLATOR(S)	
X601	EF0GC4194T4	OSCILLATOR	
		DISPLAY	
FL601	RSL0079-F	DISPLAY	
		FUSE(S)	

Ref. No.	Part No.	Part Name & Description	Remarks
F1	XBA2C12TB0S	FUSE, 250V 1. 25A	⚠ (E, EB, EG, GN)
F1	XBA2C25TB0	FUSE, 250V 2A	⚠ (GC)
F3, 4	XBA2C16TB0	FUSE, 250V 1. 6A	⚠
		SWITCH(ES)	
S601	EVQ21405R	SW, TAPE	
S602	EVQ21405R	SW, PHONO	
S603	EVQ21405R	SW, CD	
S604	EVQ21405R	SW, TUNER	
S605	EVQ21405R	SW, DAT	
S606	EVQ21405R	SW, G. EQ. ON/FLAT	
S607	EVQ21405R	SW, G. EQ. MODE	
S608	EVQ21405R	SW, SPE. MODE	
S609	EVQ21405R	SW, SPACE	
S610	EVQ21405R	SW, S. BASS	
S611	EVQ21405R	SW, V. PRESET	
S700	ESD26200A	SW, VOLTAGE ADJ.	⚠ (GC)
S701	RSS3B005S	SW, POWER	⚠ (E, EB, EG, GN)
		JACK(S)	
JK201	SJF3068N	CONNECTOR(2P)	
JK202	SJF3069-5N	CONNECTOR(4P)	
JK271	RJJ1D25ZA-C	JACK, MIC	
JK521	RJJ39T01	HEADPHONES JACK	
JK522	RJR0054BM	SPEAKER TERMINAL	
JK523	RJR0054CM	SPEAKER TERMINAL	
JK651	RJT055K011-1	CONTROL TERMINAL	
JK652	RJT055B013-1	CONTROL TERMINAL	
JK701	SJS9231-1B	AC INLET	⚠ (E, EB, EG, GC)
JK701	SJS9234B	AC INLET	⚠ (GN
		CONNECTOR(S)	
CN201	RJU057W010	SOCKET(10P)	
CN202	RJU057W004	SOCKET(4P)	
CN203	RJU057W010	SOCKET(10P)	
CN204	RJS1A1703	SOCKET(3P)	
CN601	RJU003K010M1	SOCKET(10P)	
CN602	RJU003K008M1	SOCKET(8P)	
CN603	RJU003K010M1	SOCKET(10P)	
CN604-606	SJS50581BB	SOCKET(5P)	
CN801, 802	RJU005W007	SOCKET(7P)	
CN901	RJU057W004	SOCKET(4P)	
CN951	RJU057W004	SOCKET(4P)	
CN500A	RJS1A1705	SOCKET(5P)	
CN501A	RJS1A1703	SOCKET(3P)	
CN701A	RJS1A1704	SOCKET(4P)	
CN500B	RJS1A1705	SOCKET(5P)	
CN501B	RJS1A1703	SOCKET(3P)	
CN701B	RJS1A1704	SOCKET(4P)	

Ref. No.	Part No.	Part Name & Description	Remarks
CN500C	RJS1A1705	SOCKET(5P)	
CN500D	RJS1A1705	SOCKET(5P)	
CP201	RJT057W010-1	CONNECTOR(10P)	
CP202	RJT057W004-1	CONNECTOR(4P)	
CP203	RJT057W010-1	CONNECTOR(10P)	
CP601	RJT003K010M1	CONNECTOR(10P)	
CP602	RJT003K008M1	CONNECTOR(8P)	
CP603	RJT003K010M1	CONNECTOR(10P)	
CP604-606	SJT30549BB1	CONNECTOR(5P)	
CP801, 802	RJT005W007S	CONNECTOR(7P)	
CP901	RJT057W004-1	CONNECTOR(4P)	
CP902	SJT3213	CONNECTOR(2P)	
CP951	RJT057W004-1	CONNECTOR(4P)	
		FUSE HOLDER(S)	
FC1, 2	EYF52BC	FUSE HOLDER	⚠
FC3, 4	SJT388	FUSE HOLDER	⚠(GC)
FC5-8	EYF52BC	FUSE HOLDER	⚠
		RELAY	
RLY700	SSY134	RELAY	⚠

Notes : ∗ Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
∗ Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R101, 102	ERDS2TJ331	1/4W 330
R103, 104	ERDS2TJ473	1/4W 47K
R105, 106	ERDS2TJ271	1/4W 270
R107, 108	ERDS2TJ680T	1/4W 68
R109, 110	ERDS2TJ184T	1/4W 180K
R111, 112	ERDS2TJ123	1/4W 12K
R113, 114	ERDS2TJ224T	1/4W 220K
R200	ERDS2TJ100	1/4W 10
R205, 206	ERDS2TJ102	1/4W 1K
R207, 208	ERDS2TJ104	1/4W 100K
R209, 210	ERDS2TJ122	1/4W 1.2K
R211, 212	ERDS2TJ222	1/4W 2.2K
R213, 214	ERDS2TJ102	1/4W 1K
R215, 216	ERDS2TJ104	1/4W 100K
R217, 218	ERDS2TJ123	1/4W 12K
R219, 220	ERDS2TJ473	1/4W 47K
R221, 222	ERDS2TJ561	1/4W 560
R225, 226	ERDS2TJ222	1/4W 2.2K
R227-229	ERDS2TJ473	1/4W 47K
R230	ERDS2TJ332	1/4W 3.3K
R231, 232	ERDS2TJ223	1/4W 22K
R233, 234	ERDS2TJ393	1/4W 39K
R235, 236	ERDS2TJ223	1/4W 22K
R237, 238	ERDS2TJ393	1/4W 39K
R239-241	ERDS2TJ223	1/4W 22K
R242	ERDS2TJ153	1/4W 15K
R244	ERDS2TJ103	1/4W 10K
R245, 246	ERDS2TJ273	1/4W 27K
R247, 248	ERDS2TJ103	1/4W 10K
R249, 250	ERDS2TJ273	1/4W 27K
R251	ERDS2TJ103	1/4W 10K
R252	ERDS2TJ334	1/4W 330K
R253	ERDS2TJ102	1/4W 1K
R254	ERDS2TJ334	1/4W 330K
R255	ERDS2TJ472	1/4W 4.7K
R256	ERDS2TJ102	1/4W 1K
R257, 258	ERDS2TJ561	1/4W 560
R259-262	ERDS2TJ102	1/4W 1K
R264	ERDS2TJ223	1/4W 22K
R271	ERDS2TJ473	1/4W 47K
R272	ERDS2TJ102	1/4W 1K
R273	ERDS2TJ123	1/4W 12K
R274	ERDS2TJ154	1/4W 150K
R275	ERDS2TJ122	1/4W 1.2K
R276	ERDS2TJ681	1/4W 680
R277	ERDS2TJ102	1/4W 1K
R279, 280	ERDS2TJ103	1/4W 10K
R281-283	ERDS2TJ473	1/4W 47K
R290	ERDS2TJ682T	1/4W 6.8K
R291	ERDS2TJ103	1/4W 10K
R292	ERDS2TJ332	1/4W 3.3K
R293	ERDS2TJ102	1/4W 1K
R295, 296	ERDS2TJ471	1/4W 470
R299	ERDS2TJ223	1/4W 22K
R301, 302	ERDS2TJ271	1/4W 270
R305, 306	ERDS2TJ123	1/4W 12K
R311, 312	ERDS2TJ391	1/4W 390
R321, 322	ERDS2TJ104	1/4W 100K
R323	ERDS2TJ184T	1/4W 180K
R324, 325	ERDS2TJ683	1/4W 68K
R326	ERDS2TJ562	1/4W 5.6K
R327	ERDS2TJ104	1/4W 100K
R329	ERDS2TJ222	1/4W 2.2K
R330	ERDS2TJ683	1/4W 68K
R331	ERDS2TJ563	1/4W 56K
R332	ERDS2TJ332	1/4W 3.3K
R334	ERDS2TJ104	1/4W 100K
R335	ERDS2TJ682T	1/4W 6.8K
R336	ERDS2TJ822	1/4W 8.2K
R337	ERDS2TJ104	1/4W 100K
R339	ERDS2TJ272T	1/4W 2.7K
R340, 341	ERDS2TJ563	1/4W 56K
R342	ERDS2TJ272T	1/4W 2.7K
R344	ERDS2TJ104	1/4W 100K
R345	ERDS2TJ822	1/4W 8.2K
R346	ERDS2TJ183T	1/4W 18K
R347	ERDS2TJ224T	1/4W 220K
R349	ERDS2TJ272T	1/4W 2.7K
R350	ERDS2TJ563	1/4W 56K
R351, 352	ERDS2TJ224T	1/4W 220K
R353, 354	ERDS2TJ473	1/4W 47K
R355-364	ERDS2TJ224T	1/4W 220K
R365, 366	ERDS2TJ822	1/4W 8.2K
R367, 368	ERDS2TJ473	1/4W 47K
R401, 402	ERDS2TJ682T	1/4W 6.8K
R403, 404	ERDS2TJ822	1/4W 8.2K
R405, 406	ERDS2TJ104	1/4W 100K
R407-410	ERDS2TJ152	1/4W 1.5K
R413, 414	ERDS2TJ104	1/4W 100K
R501, 502	ERDS2TJ152	1/4W 1.5K
R503, 504	ERDS2TJ272T	1/4W 2.7K
R511, 512	ERDS2TJ393	1/4W 39K
R513, 514	ERDS2TJ392T	1/4W 3.9K
R515, 516	ERDS2TJ104	1/4W 100K
R517	ERDS2TJ334	1/4W 330K
R519, 520	ERDS2TJ100	1/4W 10
R521, 522	ERDS1FVJ100T	1/2W 10 ⚠
R523-526	ERDS2TJ181T	1/4W 180
R527	ERDS2TJ223	1/4W 22K
R528	ERDS2TJ472	1/4W 4.7K
R529, 530	ERDS2TJ122	1/4W 1.2K
R531, 532	ERX1SJR22E	1W 0.22
R535-540	ERDS2TJ104	1/4W 100K
R541, 542	ERDS2TJ105T	1/4W 1M
R543	ERDS2TJ470	1/4W 47
R548	ERDS2TJ224T	1/4W 220K
R549	ERDS2TJ223	1/4W 22K
R550	ERDS2TJ333	1/4W 33K
R551, 552	ERDS2TJ153	1/4W 15K
R555, 556	ERDS2TJ472	1/4W 4.7K
R557, 558	ERDS2TJ123	1/4W 12K
R559	ERDS2TJ332	1/4W 3.3K
R560	ERDS2TJ122	1/4W 1.2K
R561	ERDS2TJ271	1/4W 270
R562	ERDS2TJ222	1/4W 2.2K
R563, 564	ERDS2TJ102	1/4W 1K
R565, 566	ERDS1FVJ4R7T	1/2W 4.7 ⚠
R571, 572	ERDS2TJ682T	1/4W 6.8K
R573	ERDS2TJ330	1/4W 33
R574	ERDS2TJ152	1/4W 1.5K
R575	ERDS2TJ333	1/4W 33K
R576	ERDS2TJ153	1/4W 15K
R577	ERDS2TJ103	1/4W 10K
R578	ERDS1FVJ560T	1/2W 56 ⚠
R579	ERDS1FVJ680T	1/2W 68 ⚠
R580	ERDS2TJ473	1/4W 47K
R601	ERDS2TJ103	1/4W 10K
R602	ERDS2TJ102	1/4W 1K
R603	ERDS2TJ122	1/4W 1.2K
R604	ERDS2TJ152	1/4W 1.5K
R605	ERDS2TJ182	1/4W 1.8K
R606	ERDS2TJ222	1/4W 2.2K
R607	ERDS2TJ332	1/4W 3.3K
R608	ERDS2TJ472	1/4W 4.7K
R609	ERDS2TJ682T	1/4W 6.8K
R610	ERDS2TJ123	1/4W 12K
R611	ERDS2TJ333	1/4W 33K
R612	ERDS2TJ391	1/4W 390
R614	ERDS2TJ561	1/4W 560
R615	ERDS2TJ471	1/4W 470
R616, 617	ERDS2TJ222	1/4W 2.2K
R618	ERDS2TJ682T	1/4W 6.8K
R619	ERDS2TJ103	1/4W 10K
R620	ERDS2TJ225	1/4W 2.2M

Ref. No.	Part No.	Values & Remarks
R621	ERDS2TJ103	1/4W 10K
R622	ERDS2TJ222	1/4W 2.2K
R624	ERDS2TJ331	1/4W 330
R625, 626	ERDS2TJ153	1/4W 15K
R627	ERDS2TJ2R2T	1/4W 2.2
R628	ERDS2TJ152	1/4W 1.5K
R629	ERDS2TJ562	1/4W 5.6K
R630	ERDS2TJ224T	1/4W 220K
R631	ERDS2TJ471	1/4W 470
R632	ERDS2TJ105T	1/4W 1M
R633	ERDS2TJ102	1/4W 1K
R634	ERDS2TJ333	1/4W 33K
R635, 636	ERDS2TJ153	1/4W 15K
R637	ERDS2TJ224T	1/4W 220K
R638	ERDS2TJ222	1/4W 2.2K
R639	ERDS2TJ103	1/4W 10K
R640	ERDS2TJ224T	1/4W 220K
R641, 642	ERDS2TJ101	1/4W 100
R643, 644	ERDS2TJ223	1/4W 22K
R645, 646	ERDS2TJ470	1/4W 47
R647, 648	ERDS2TJ102	1/4W 1K
R649-652	ERDS2TJ393	1/4W 39K
R653, 654	ERDS2TJ470	1/4W 47
R655-657	ERDS2TJ102	1/4W 1K
R661	ERDS2TJ102	1/4W 1K
R662	ERDS2TJ472	1/4W 4.7K
R663, 664	ERDS2TJ2R2T	1/4W 2.2
R671	ERDS2TJ222	1/4W 2.2K
R672	ERDS2TJ103	1/4W 10K
R700, 701	ERD25FVJ221T	1/4W 220 ⚠
R702	ERDS2TJ222	1/4W 2.2K
R705	ERDS2TJ152	1/4W 1.5K
R706	ERD2FCVG181T	1/4W 180 ⚠
R709	ERDS2TJ101	1/4W 100
R710	ERDS2EJ820	1/4W 82
R711, 712	ERDS2TJ3R3T	1/4W 3.3
R713, 714	ERDS2TJ152	1/4W 1.5K
R715	ERDS2TJ684	1/4W 680K
R716	ERDS2TJ154	1/4W 150K
R717	ERDS2TJ392T	1/4W 3.9K
R718	ERDS2TJ103	1/4W 10K
R719	ERDS2TJ333	1/4W 33K
R720	ERDS2TJ153	1/4W 15K
R721	ERDS2TJ473	1/4W 47K
R722	ERDS2TJ4R7T	1/4W 4.7
R723	ERDS1FVJ181T	1/2W 180 ⚠
R724	ERDS2TJ120T	1/4W 12
R725	ERDS2TJ122	1/4W 1.2K
R726	ERDS2TJ4R7T	1/4W 4.7
R801, 802	ERDS2TJ823T	1/4W 82K
R803, 804	ERDS2TJ103	1/4W 10K
R805, 806	ERDS2TJ332	1/4W 3.3K

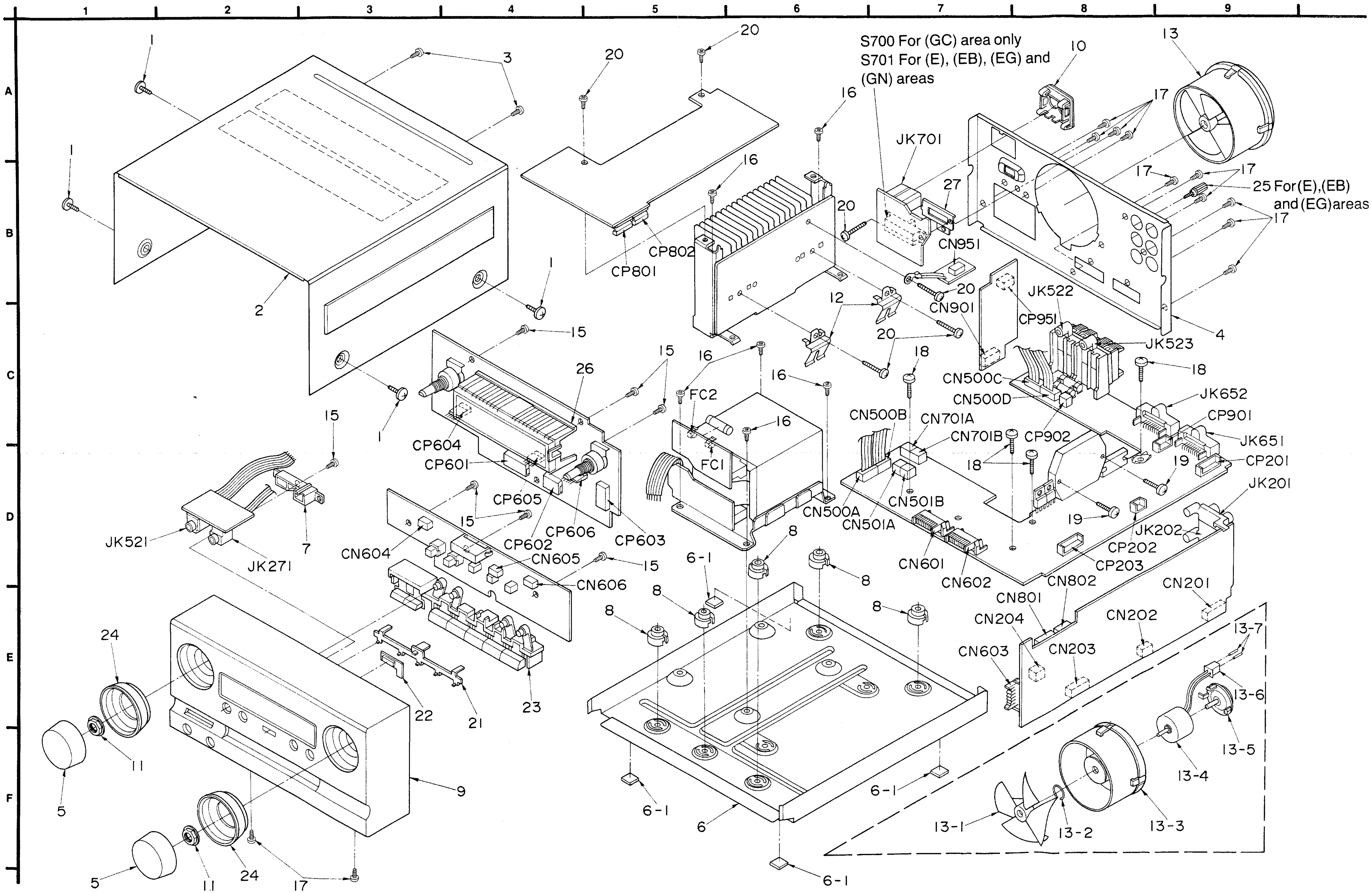
Ref. No.	Part No.	Values & Remarks
R807, 808	ERDS2TJ393	1/4W 39K
R809, 810	ERDS2TJ153	1/4W 15K
R811, 812	ERDS2TJ103	1/4W 10K
R813, 814	ERDS2TJ153	1/4W 15K
R815, 816	ERDS2TJ273	1/4W 27K
R817, 818	ERDS2TJ470	1/4W 47
R819-822	ERDS2TJ272T	1/4W 2.7K
R825	ERDS2TJ472	1/4W 4.7K
R829, 830	ERDS2TJ222	1/4W 2.2K
R831, 832	ERDS2TJ392T	1/4W 3.9K
R833, 834	ERDS2TJ331	1/4W 330
R835, 836	ERDS2TJ181T	1/4W 180
R837, 838	ERDS2TJ393	1/4W 39K
R839, 840	ERDS2TJ391	1/4W 390
R841	ERDS2TJ332	1/4W 3.3K
R842	ERDS2TJ223	1/4W 22K
R843, 844	ERDS2TJ105T	1/4W 1M
R845	ERDS2TJ104	1/4W 100K
R847, 848	ERDS2TJ105T	1/4W 1M
R851-854	ERDS2TJ224T	1/4W 220K
R860	ERDS2TJ472	1/4W 4.7K
R861, 862	ERDS2TJ222	1/4W 2.2K
R863, 864	ERDS2TJ221	1/4W 220
R865, 866	ERDS2TJ102	1/4W 1K
R867	ERDS2TJ334	1/4W 330K
R868	ERDS2TJ105T	1/4W 1M
R869, 870	ERDS2TJ152	1/4W 1.5K
R871, 872	ERDS2TJ473	1/4W 47K
R873, 874	ERDS2TJ563	1/4W 56K
R875, 876	ERDS2TJ103	1/4W 10K
R877, 878	ERDS2TJ392T	1/4W 3.9K
R879, 880	ERDS2TJ102	1/4W 1K
R883, 884	ERDS2TJ152	1/4W 1.5K
R885, 886	ERDS2TJ333	1/4W 33K
R951	ERDS2TJ332	1/4W 3.3K
R952	ERDS2TJ103	1/4W 10K
R953	ERDS2TJ183T	1/4W 18K
R954	ERDS2TJ103	1/4W 10K
R955	ERDS2TJ473	1/4W 47K
R956	ERDS2TJ272T	1/4W 2.7K
R957	ERDS2TJ103	1/4W 10K
R958	ERDS2TJ102	1/4W 1K
		CAPACITORS
C101, 102	ECBT1H102KB5	50V 1000P
C103, 104	ECEA0JK330	6.3V 33U
C105, 106	ECQB1H223JZ3	50V 0.022U
C107, 108	ECQB1H682JZ3	50V 6800P
C109, 110	ECEA1HPS3R3	50V 3.3U
C111, 112	ECBT1H221KB5	50V 220P (EG)
C113, 114	ECBT1H221KB5	50V 220P

Ref. No.	Part No.	Values & Remarks
C115-118	ECBT1H101KB5	50V 100P (EG)
C119, 120	ECBT1H104ZF5	50V 0.1U (EG)
C200	ECBT1H102KB5	50V 1000P E, EB, GC, GN
C200	ECBT1H681KB5	50V 680P (EG)
C201	ECBT1H104ZF5	50V 0.1U (EG)
C211, 212	ECEA1HKA010B	50V 1U
C215, 216	ECBT1E103ZF	25V 0.01U
C217	ECBT1H330J5	50V 33P
C219	ECBT1H101KB5	50V 100P
C230	ECBT1H104ZF5	50V 0.1U
C231, 232	ECEA1HPS3R3	50V 3.3U
C233	ECFR1E823KR	25V 0.082U
C234	ECFR1E222KV	25V 2200P
C235	ECEA1CPS100	16V 10U
C236	ECEA1HKA010B	50V 1U
C243, 244	ECEA1CPS100	16V 10U
C271	ECBT1H102KB5	50V 1000P
C272	ECEA1HPS3R3	50V 3.3U
C273, 274	ECBT1H101KB5	50V 100P
C275	ECEA1HPS3R3	50V 3.3U
C300	ECBT1H104ZF5	50V 0.1U
C303, 304	ECEA1HKAR47B	50V 0.47U
C305, 306	ECQV1H104JZ3	50V 0.1U
C307, 308	ECEA1HKR22B	50V 0.22U
C309, 310	ECFR1E223KR	25V 0.022U
C311, 312	ECFR1E563KR	25V 0.056U
C313, 314	ECFR1E562KR	25V 5600P
C315, 316	ECFR1E123KR	25V 0.012U
C317, 318	ECFR1E152KR	25V 1500P
C319, 320	ECFR1E392KR	25V 3900P
C321, 322	ECBT1H561KB5	50V 560P
C323, 324	ECBT1H821KB5	50V 820P
C327, 328	ECEA1AKA330Q	10V 33U
C331	ECBT1H100J5	50V 10P
C332, 333	ECBT1H561KB5	50V 560P
C334, 335	ECEA1HK2R2B	50V 2.2U
C336, 337	ECFR1E152KR	25V 1500P
C338, 339	ECFR1E562KR	25V 5600P
C340, 341	ECEA1HK2R2B	50V 2.2U
C342, 343	ECFR1E223KR	25V 0.022U
C344, 345	ECFR1E333KR	25V 0.033U
C346	ECEA1HK2R2B	50V 2.2U
C351, 352	ECEA1CK470	16V 47U
C353, 354	ECEA1HPS3R3	50V 3.3U
C355	ECBT1E103ZF	25V 0.01U
C356	ECEA1HKA010B	50V 1U
C357, 358	ECEA1HPS3R3	50V 3.3U
C361, 362	ECBT1H104ZF5	50V 0.1U
C363, 364	ECBT1H221KB5	50V 220P (EG)
C400	ECEA1CK470	16V 47U
C401, 402	ECEA1CKA100B	16V 10U
C403, 404	ECBT1H270J5	50V 27P

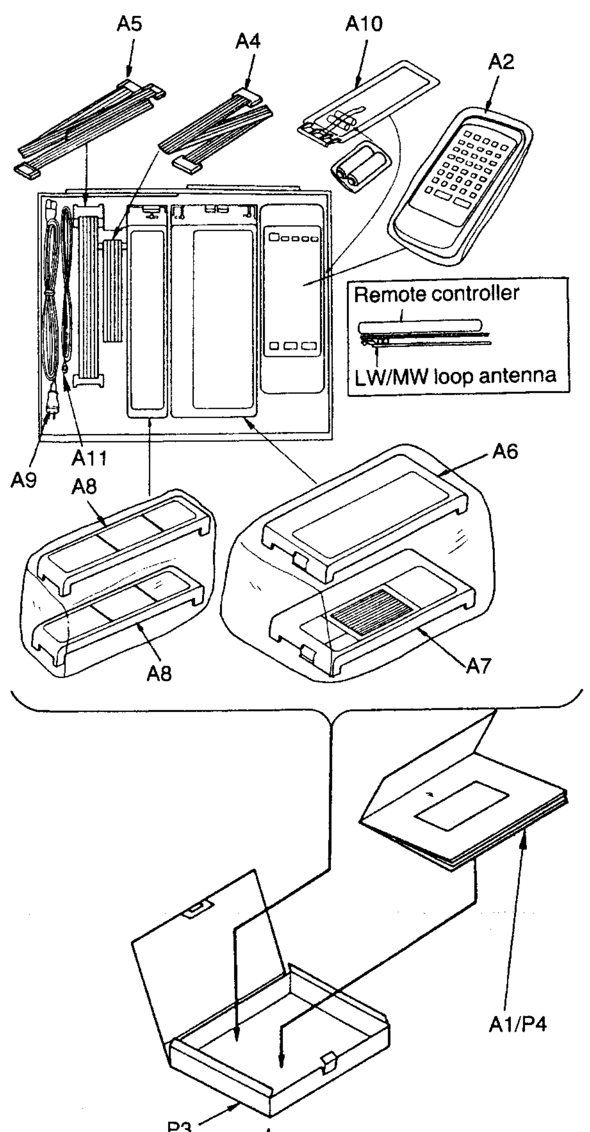
Ref. No.	Part No.	Values & Remarks
C405, 406	ECEA1HPS3R3	50V 3.3U
C407, 408	ECEA1CPS220	16V 22U
C411, 412	ECBT1E103ZF	25V 0.01U
C413, 414	ECBT1E223ZF	25V 0.022U
C415, 416	ECEA1CKA100B	16V 10U
C417, 418	ECEA1HKA010B	50V 1U
C501, 502	ECEA1EN3R3SB	25V 3.3U
C511, 512	ECBT1H820KB5	50V 82P
C513, 514	ECEA1CPS100	16V 10U
C515, 516	ECBT1H150J5	50V 15P
C517	ECEA1EN220SB	25V 22U
C518	ECEA1EN100SB	25V 10U
C519, 520	ECFR1E223KR	25V 0.022U
C521, 522	ECBT1H821KB5	50V 820P
C524	ECEA1CKA100B	16V 10U
C525, 526	ECEA1HKA010B	50V 1U
C527, 528	ECBT1H223ZF5	50V 0.022U (EG)
C550	ECEA1HPS2R2	50V 2.2U
C551, 552	ECEA1HPS3R3	50V 3.3U
C553, 554	ECEA1EU101	25V 100U
C555	ECEA1EU221	25V 220U
C556	ECBT1E223ZF	25V 0.022U E, EB, GC, GN
C557, 558	ECEA1EU101	25V 100U
C559, 560	ECFR1E473KR	25V 0.047U
C561	ECEA1HU101	50V 100U
C563	ECBT1C272KR5	16V 2700P (E, GC, GN)
C563	ECBT1C332KR5	16V 3300P (EG)
C564	ECBT1C272KR5	16V 2700P (E, GC, GN)
C564	ECBT1C332KR5	16V 3300P (EG)
C565, 566	ECKR1H103ZF5	50V 0.01U (EG)
C571	ECEA1CKA100B	16V 10U
C572	ECEA1EU101	25V 100U
C573	ECBT1E103ZF	25V 0.01U
C574, 575	ECEA0JKA470B	6.3V 47U
C601	ECEA0JKA220B	6.3V 22U
C602	ECBT1E103ZF	25V 0.01U
C603	ECEA0JKA101B	6.3V 100U
C604	ECBT1E103ZF	25V 0.01U
C606	ECEA1HKA010B	50V 1U
C607, 608	ECEA1HK3R3	50V 3.3U
C610	ECEA1HKA010B	50V 1U
C615, 616	ECEA1HKA010B	50V 1U
C617	ECQV1H683JZ3	50V 0.68U
C618	ECFR1E333KR	25V 0.033U
C620	ECEA1VKA330B	35V 33U
C621	ECEA1HKA010B	50V 1U
C625	ECFR1E223KR	25V 0.022U
C626, 627	ECBT1H471KB5	50V 470P
C701	ECKR2H103ZU	500V 0.01U
C702	ECEA1HU4R7	50V 4.7U
C703	ECEA45V472YB	45V 4700U
C704	ECEA1HU222B	50V 2200U
C705	ECEA1HU330	50V 33U
C706	ECEA1HU101	50V 100U
C708	ECBT1E103ZF	25V 0.01U
C709	ECEA1CK470	16V 47U
C711, 712	ECKR1H103ZF5	50V 0.01U
C713, 714	ECEA1CKA101B	16V 100U
C716-718	ECKR2H102ZF5	500V 1000P
C719	ECEA1HKA010B	50V 1U
C720	ECBT1E103ZF	25V 0.01U
C723	ECEA1CKA100B	16V 10U
C799	ECBT1E103ZF	25V 0.01U E, EB, GC, GN
C801, 802	ECEA1HPS3R3	50V 3.3U
C803, 804	ECEA1HPS2R2	50V 2.2U
C805, 806	ECFR1E822KR	25V 8200P
C807, 808	ECFR1E272KR	25V 2700P
C809, 810	ECFR1E473KR	25V 0.047U
C813, 814	ECEA1HPS3R3	50V 3.3U
C815, 816	ECFR1E223KR	25V 0.022U
C819, 820	ECFR1E183KR	25V 0.018U
C821-824	ECFR1E822KR	25V 8200P
C827, 828	ECEA1HPS3R3	50V 3.3U
C829-832	ECEA1HKR68	50V 0.68U
C833, 834	ECEA1HPS3R3	50V 3.3U
C835, 836	ECEA1HPS2R2	50V 2.2U
C837, 838	ECEA1HPS3R3	50V 3.3U
C842	ECEA1CKA100B	16V 10U
C843	ECEA1CK470	16V 47U
C951	ECEA1HKA010B	50V 1U

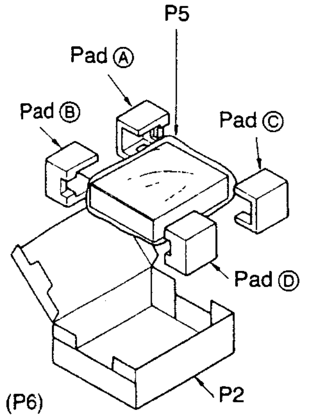
Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RHD30007	SCREW	
2	RKM0105B-K	CABINET	
3	XTBS3+8JFZ1	SCREW	
4	RGR0114C-B1	REAR PANEL	(E)
4	RGR0114C-A1	REAR PANEL	(EB)
4	RGR0114C-C1	REAR PANEL	(EG)
4	RGR0114D-A1	REAR PANEL	(GC)
4	RGR0114C-D	REAR PANEL	(GN)
5	RGW0113-K	KNOB, VOLUME	
6	RFKJUCH7N-K	BOTTOM BOARD ASS'Y	
6-1	SHG1654	FOOT	
7	RMN0121	HOLDER	
8	SHE170-2	HOLDER	
9	RFKGUCH7E-K	FRONT PANEL ASS'Y	(E, EB, EG)
9	RFKGUCH7N-K	FRONT PANEL ASS'Y	(GC, GN)
10	SJS9231A	AC INLET COVER	(E, EB, EG, GC)
10	SJS9234A	AC INLET COVER	(GN)
11	SNE4021-1	NUT	
12	SUS894-1	HOLDER	
13	SYE1128-5	FAN ASS'Y	
13-1	SHE232	FAN	
13-2	SUS271	SPRING	
13-3	SHE233	FAN CASE	
13-4	MDN-4RB4MRC	MOTOR	
13-5	SHE234	CAP	
13-6	SJS5215	SOCKET	
13-7	SJT783	TERMINAL	
15	XTBS26+8J	SCREW	
16	XTBS3+8FFZ1	SCREW	
17	XTBS3+8JFZ1	SCREW	
18	XTB3+12JFZ	SCREW	
19	XTB3+16JFZ	SCREW	
20	XTB3+8JFZ	SCREW	
21	RGL0121-C	PANEL LIGHT	
22	RGL0122-C	ORNAMENT (SUPER BASS)	
23	RGU0548B-K	BUTTON, SELECTOR	
24	RFKNUCH7E-K	VOLUME ORNAMENT ASS'Y	
25	SNE2123	GND SCREW	(E, EB, EG)
26	RMN0120	FL HOLDER	
27	RMN0144	HOLDER	(E, EB, EG, GN)
		PACKING MATERIAL	
P1	RPG0925	PACKING CASE	SYSTEM (E)
P1	RPG1044	PACKING CASE	SYSTEM (EB)
P1	RPG1045	PACKING CASE	SYSTEM (EG)
P1	RPG1051	PACKING CASE	SYSTEM (GC)
P1	RPG1052	PACKING CASE	SYSTEM (GN)
P2	RPG0821	PACKING CASE	ST-CH7, SL-CH7
P2	RPG0822	PACKING CASE	SU-CH7, RS-CH7
P3	RPN0504	ACCESSORY BOX	
P4	SPB1061	PROTECTION COVER (MANUAL)	
P5	XZB35X34C04	PROTECTION COVER	
P6	RPN0449	PAD	ST-CH7, SL-CH7
P6	RPN0450	PAD	SU-CH7, RS-CH7
		ACCESSORIES	
A1	RQF1125	INSTRUCTIONS MANUAL ASS'Y	(E)
A1	RQF1126	INSTRUCTIONS MANUAL ASS'Y	(EB)
A1	RQF1127	INSTRUCTIONS MANUAL ASS'Y	(EG)
A1	RQF1128	INSTRUCTIONS MANUAL ASS'Y	(GC)
A1	RQF1129	INSTRUCTIONS MANUAL ASS'Y	(GN)
A1-1	RFKSUCH7E-K	INSTRUCTIONS MANUAL	(E)
A1-1	RQT1034-B	INSTRUCTIONS MANUAL	(EB)
A1-1	RQT1035-D	INSTRUCTIONS MANUAL	(EG)
A1-1	RQT1211-G	INSTRUCTIONS MANUAL	(GC, GN)
A1-2	RQA0013	WARRANTY CARD	(E, EB, EG)
A1-2	SQX7186	WARRANTY CARD	(GN)
A1-3	RQCB0169	SERVICENTER LIST	
A2	RAK-SC510W	REMOTE CONTROLLER	(E, EB, EG)
A2	RAK-SC511W	REMOTE CONTROLLER	(GC, GN)
A2-1	RKK0020-K	BATTERY COVER	
A3	REC201B50Q-1	SPEAKER CABLE	
A4	REX9162	FLAT CABLE	
A5	REX9163	FLAT CABLE	
A6	RKF0127E-K2	BACK COVER (DECK)	(RS-CH7)
A7	RKF0127D-K2	BACK COVER (AMP.)	(SU-CH7)
A8	RYF0122-K	BACK COVER (TUNER/CD PLAYER)	(ST-CH7/SL-CH7)
A9	SFDAC05E03	AC POWER SUPPLY CORD	⚠ (E, EG)
A9	SJA193	AC POWER SUPPLY CORD	⚠ (EB)
A9	RJA0004	AC POWER SUPPLY CORD	⚠ (GC)
A9	SJA173	AC POWER SUPPLY CORD	⚠ (GN)
A10	SPB1163T	AM LOOP ANTENNA	
A10-1	SMA233-1M	HOLDER	
A10-2	XTN3+10AFZ	SCREW	
A11	SSA270M	FM ANTENNA	(E, EB, EG)
A11	SSA272M	FM ANTENNA	(GC, GN)
A12	SJP9009	ATTACHMENT PLUG	⚠ (EB)
A13	SJP9215	AC PLUG ADAPTOR	⚠ (GC)

■ CABINET PARTS LOCATION

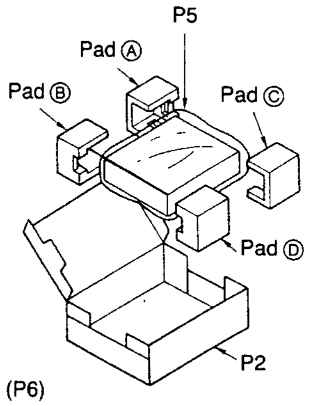

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
S700 For (GC) area only
S701 For (E), (EB), (EG) and (GN) areas
1
3
20
20
10
13
17
16
JK701
16
27
20
17
17
25 For(E),(EB) and (EG)areas
17
2
CP802
CP801
CN951
20
CN901
12
20
JK522
CP951
JK523
4
15
15
16
26
18
18
16
CN500C
CN500D
JK652
CP901
15
16
FC2
FC1
CN500B
CN701A
CN701B
CP902
JK651
CP604
CP601
18
19
CP201
CP605
CN501B
JK201
15
CN500A
CN501A
19
JK202
JK521
7
CP606
CP602
CP603
8
CN601
CP202
CN604
JK271
CN605
15
6-1
CN602
CP203
CN606
8
8
CN802
CN201
8
8
CN801
CN204
CN202
24
13-7
CN603
CN203
22
21
23
13-6
11
13-5
13-4
9
6-1
6-1
5
13-1
13-2
13-3
6
5
11
24
17
6-1

■ PACKING (For System: SC-CH7)

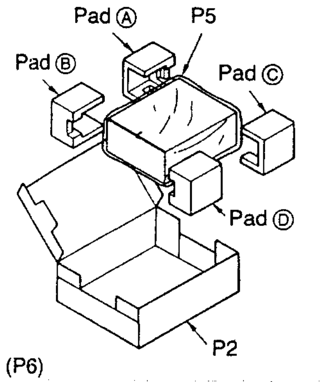

A5
A4
A10
A2
Remote controller
LW/MW loop antenna
A9
A11
A8
A6
A8
A7
A1/P4
P3


P5
Pad Ⓐ
Pad Ⓑ
Pad Ⓒ
Pad Ⓓ
P2

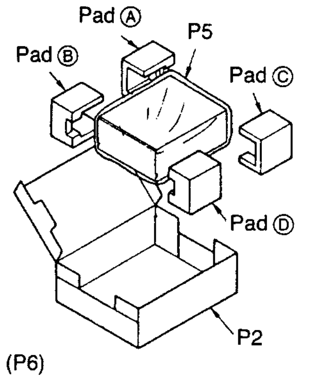
(P6)
Pad Ⓐ Ⓑ Ⓒ Ⓓ Ass'y: RPN0449
[SL-CH7]


P5
Pad Ⓐ
Pad Ⓑ
Pad Ⓒ
Pad Ⓓ
P2

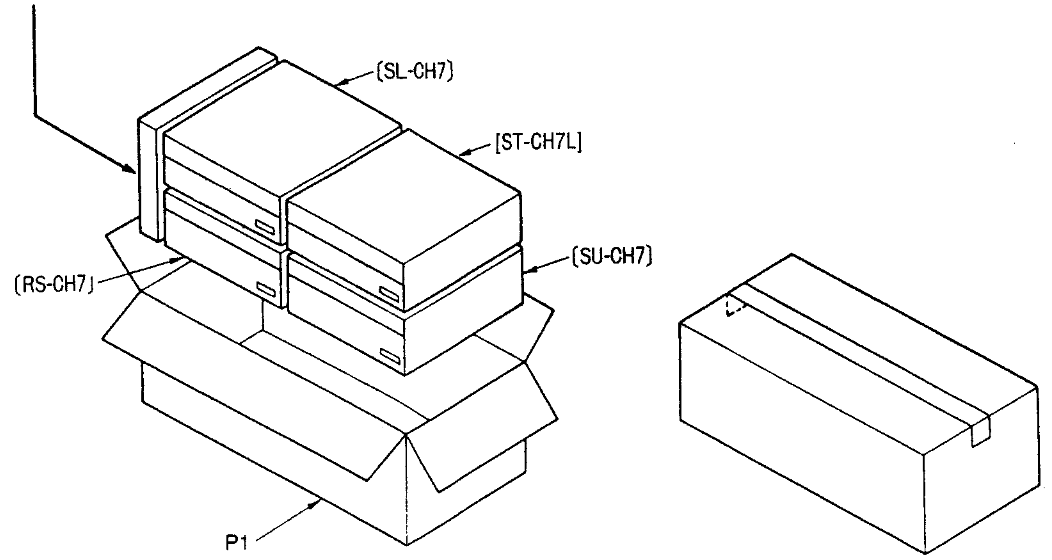
(P6)
Pad Ⓐ Ⓑ Ⓒ Ⓓ Ass'y: RPN0449
[ST-CH7L]


Pad Ⓐ
P5
Pad Ⓑ
Pad Ⓒ
Pad Ⓓ
P2

(P6)
Pad Ⓐ Ⓑ Ⓒ Ⓓ Ass'y: RPN0450
[RS-CH7]


Pad Ⓐ
P5
Pad Ⓑ
Pad Ⓒ
Pad Ⓓ
P2

(P6)
Pad Ⓐ Ⓑ Ⓒ Ⓓ Ass'y: RPN0450
[SU-CH7]


[SL-CH7]
[ST-CH7L]
[SU-CH7]
[RS-CH7]
P1

Printed in Japan
F910410300 FF/HH/KK/MT

ORDER NO. AD9104081C8

Service Manual

Cassette Deck

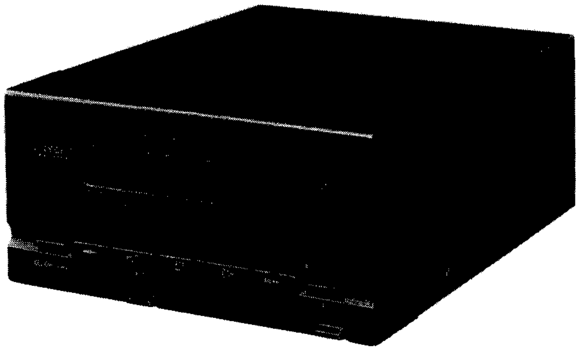
RS-CH7

Dolby NR-Equipped
Stereo Double Cassette Deck

* DOLBY B•C NR

Color

(K)	.... Black Type



Areas

Country Code	Area	Color
(E)	Continental Europe.	(K)
(GC)	Third Region	

System: SC-CH7

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

RS-TR165 MECHANISM SERIES (AR300)

■ SPECIFICATIONS

(DIN 45 500)

Track system	Compact cassette stereo
Tape speed	4.8 cm/sec. ($1\frac{7}{8}$ ips)
Bias frequency	80 kHz
Heads	
(DECK 2) REC/PLAY	Permalloy head
Erasing	Double-gap ferrite head
(DECK 1) PLAY	Permalloy head
Motors	
(DECK 2)	DC servo motor
(DECK 1)	DC servo motor
Wow and flutter	0.1% (WRMS)
Fast Forward and Rewind Time	Approx. 110 seconds with C-60 cassette tape
Frequency response	
METAL	30 Hz~17 kHz
CrO_2	30 Hz~16 kHz
NORMAL	30 Hz~16 kHz

S/N	(Signal level max recording level, CrO_2 type tape)
DOLBY B NR on	66 dB (CCIR)
DOLBY C NR on	74 dB (CCIR)
DOLBY off	56 dB (A WTD)

■ GENERAL

Power consumption	16 W
Dimensions (W×H×D)	215×110×297 mm ($8\frac{15}{32}''\times4\frac{11}{32}''\times11\frac{11}{16}''$)
Weight	2.6 kg (5.7 lb.)

Notes:

1. Specifications are subject to change without notice.
2. Weight and dimensions show are approximate.

***Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.**

System	Tuner	Amplifier	CD Player	Cassette Deck	Speakers
SC-CH7	ST-CH7L	SU-CH7	SL-CH7	RS-CH7	SB-CH7

Technics / Panasonic
(E) (GC)

■ CONTENTS

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DISASSEMBLY INSTRUCTIONS .... 4~7
DESCRIPTION OF FL PANEL 8
MEASUREMENTS AND ADJUSTMENTS .... 9~11
BLOCK DIAGRAM 12, 13
SCHEMATIC DIAGRAM .... 14~19
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PRINTED CIRCUIT BOARDS AND
WIRING CONNECTION DIAGRAM .... 20~22
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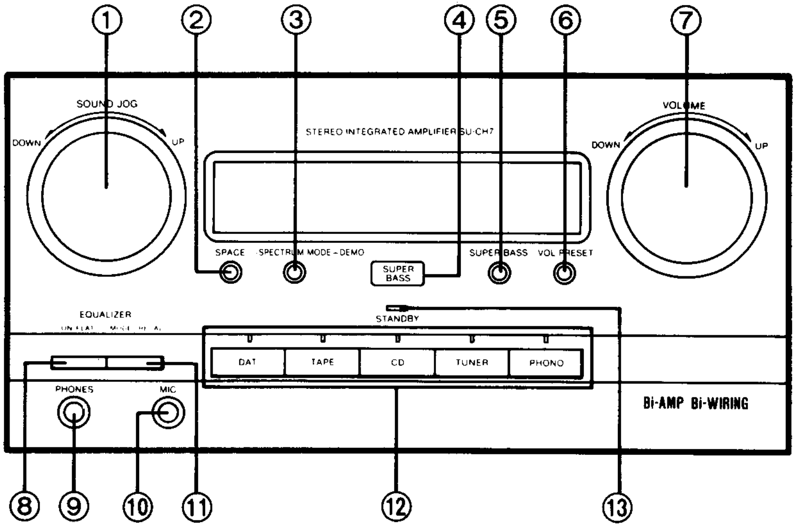
REPLACEMENT PARTS LIST .... 25~37
MECHANISM PARTS LOCATION (DECK 1) 29, 30
(DECK 2) 33, 34
CABINET PARTS LOCATION.......................... 35, 36

Note:
Refer to the service manual for Model No. SU-CH7, Order No. AD9104082C1 for information on ACCESSORIES, INSTALLATION OF THE SYSTEM, CONNECTIONS and PACKAGING.

■ LOCATION OF CONTROLS



Amplifier: control section

① Sound effect level control (SOUND JOG)

This control is used for adjusting the level of the ambience enhancement effect and the equalization level.

② Ambience enhancement button (SPACE)

This button is used to activate ambience enhancement mode.

③ Spectrum mode-select/demonstration button (-SPECTRUM MODE—DEMO)

This button is used to select one of the six spectrum curves. If you press and hold this button, six types of sound effects (spectrum curve in combination with ambience enhancement) will be sequentially changed (Demonstration mode).

④ Super bass indicator

Illuminates when the super bass mode is activated.

⑤ Super bass button (SUPER BASS)

When this button is pressed, the dynamic low frequency ranges are boosted.

⑥ Volume preset button (VOL. PRESET)

This button is used to make a volume presetting.

⑦ Volume level control (VOLUME)

This control is used to adjust the volume level (−82 dB~0 dB). Note that −82 dB is the lowest volume setting and 0 dB is the highest level setting.

⑧ Equalization function button (ON/FLAT)

This button is used to switch the equalization correction function. If no equalization correction is desired, press this button again to cancel the function.

⑨ Headphones jack (PHONES)

⑩ Microphone jack (MIC)

⑪ Equalization mode-select/recall button (-MODE—RECALL)

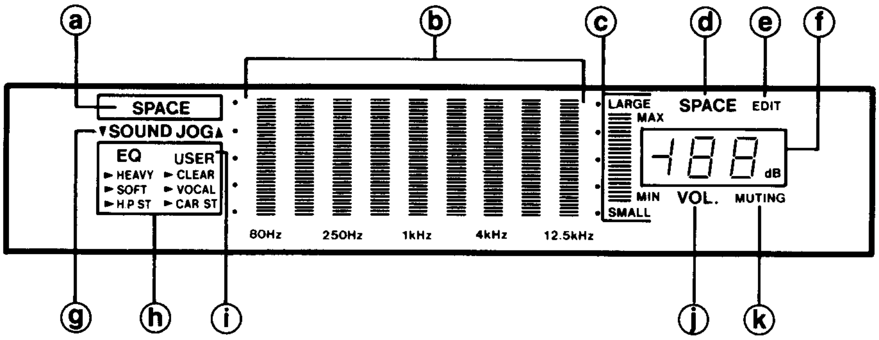
This button is used to retrieve a pre-programmed equalization curve from the memory. If you press and hold this button, a curve you programmed can be retrieved.

⑫ Input selectors and indicators

These selectors are used to select the sound source to be heard. When the sound source is selected, the indicator above the selector will illuminate.

⑬ Standby indicator (STANDBY)

This indicator illuminates when the power "STANDBY⏻/ON" switch of the unit or that of the remote control is switched "OFF". Its purpose is to alert the user of the constant supply voltage to the internal circuitry even with the power switch OFF.
For this unit, even if this switch is switched to the "STANDBY" position, there is still a slight power consumption of about 17 watts: this is in order to retain of the "most recent" memory and the preset-memory functions.



Amplifier: display section

ⓐ Ambience enhancement mode indicator (SPACE)

Illuminates when the ambience enhancement mode is activated.

ⓑ Spectrum analysis display

This display shows the spectrum analysis level.

ⓒ Level meter

Display the volume level as it is being adjusted by the volume control. When adjusting the level of the ambience enhancement effect with the sound effect level control, the display shows the level of the ambience enhancement effect.

ⓓ Ambience enhancement adjustment indicator (SPACE)

Illuminates when adjusting the level of the ambience enhancement effect.

ⓔ CD edit indicator (EDIT)

Illuminates when making an edit-recording of a compact disc.

ⓕ Volume level display

Displays the volume level.

ⓖ Sound effect indicator (▼ SOUND JOG ▲)

When "▼" illuminates, it shows the equalization curves can be adjusted, and when "▲" illuminates, it shows that the ambience enhancement effect can be adjusted.

ⓗ Equalization mode indicators (HEAVY-CAR ST)

These indicators show which of the six equalization curves is currently used.

ⓘ "USER" indicator (USER)

This indicator illuminates to show that the desired equalization curves can be programmed into memory or retrieved from the memory.

ⓙ Volume indicator (VOL.)

Illuminates when adjusting the volume level.

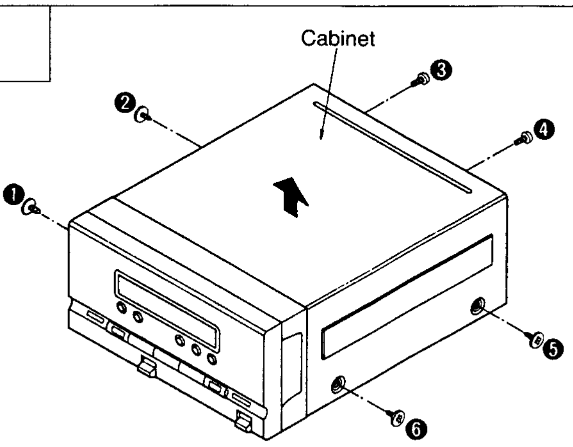
ⓚ Muting indicator (MUTING)

Illuminates when the muting mode is activated.

■ DISASSEMBLY INSTRUCTIONS

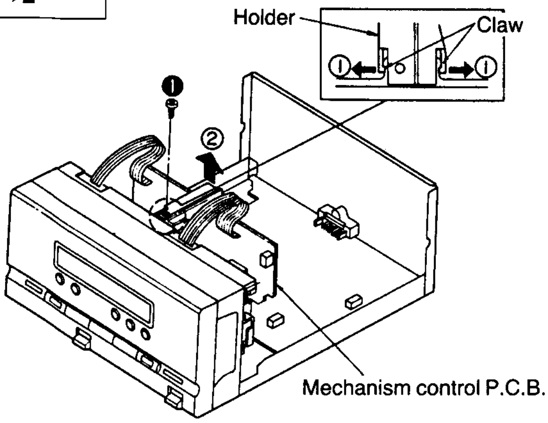
"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. **1**	**Removal of the Cabinet**
Procedure **1**	


Cabinet
❶
❷
❸
❹
❺
❻

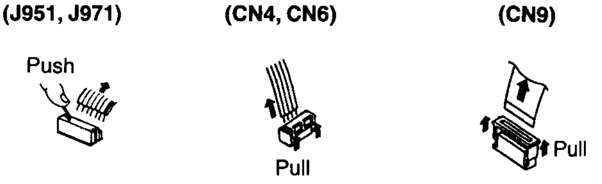
- Remove 6 screws (❶~❻).

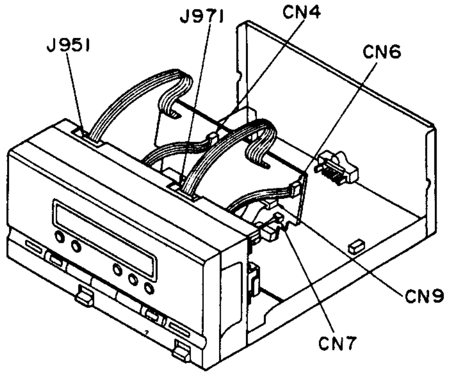
Ref. No. **2**	**Removal of the Mechanism Control P.C.B.**
Procedure **1→2**	


Holder
Claw
①
①
❶
②
Mechanism control P.C.B.

1. Remove the screw (❶).
2. Remove 2 claw in the direction of arrow ① and then remove the holder.
3. Remove the mechanism control P.C.B. in the direction of arrow ②.

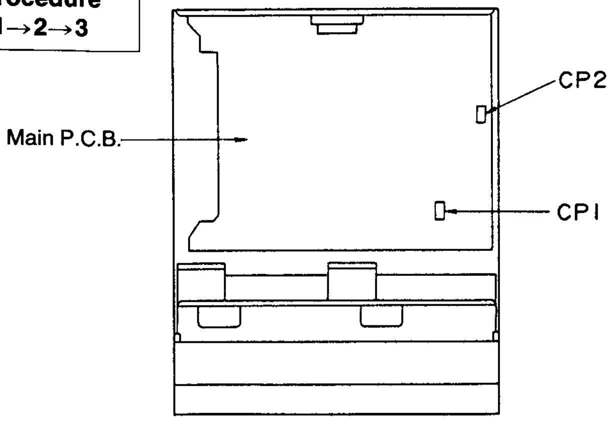
Removal of the Flat Cable


(J951, J971)
(CN4, CN6)
(CN9)
Push
Pull
Pull

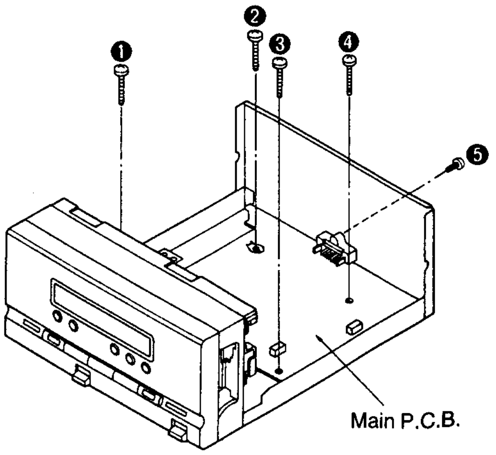

J971
CN4
J951
CN6
CN9
CN7

4. Remove 5 flat cable (CN4, CN6, CN9, J951, J971).
5. Remove the connector (CN7).

Ref. No. **3**	**Removal of the Main P.C.B.**
Procedure **1→2→3**	


Main P.C.B.
CP2
CP1

1. Remove 2 connector (CP1, CP2).

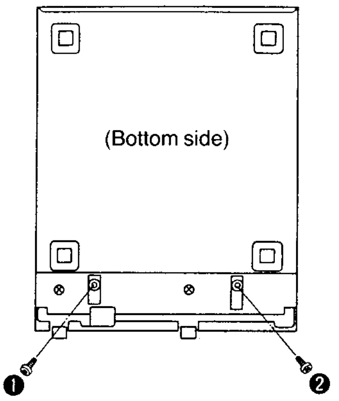

❶
❷
❸
❹
❺
Main P.C.B.

2. Remove 5 screws (❶~❺).

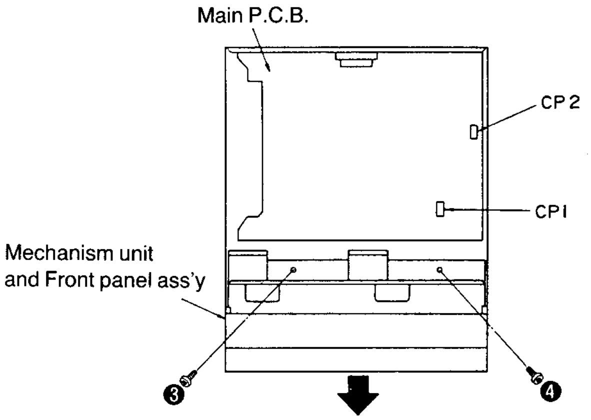
Ref. No.
4

Removal of the Mechanism Unit/Front Panel Ass'y

Procedure
1→2→4


(Bottom side)
❶
❷

1. Remove 4 screws (❶~❹).

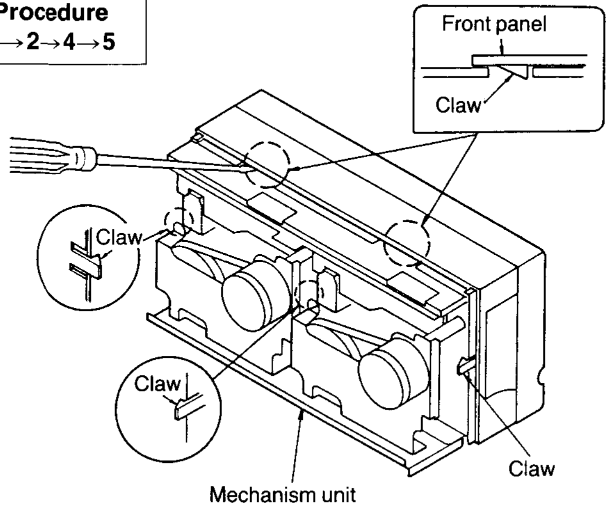

Main P.C.B.
CP 2
CP I
Mechanism unit
and Front panel ass'y
❸
❹

2. Remove 2 connectors (CP1, CP2).
3. Remove the mechanism unit and front panel in the direction of the arrow.

Ref. No.
5

Removal of the Mechanism Unit

Procedure
1→2→4→5

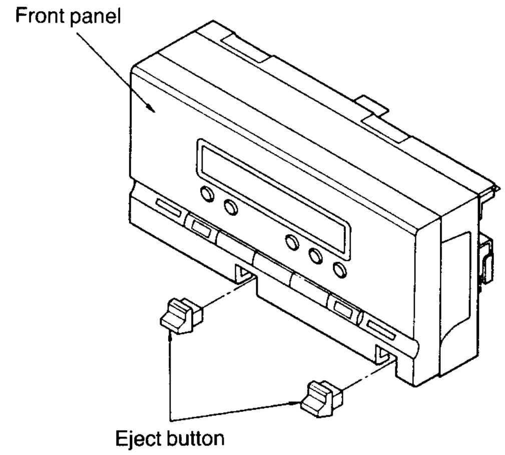

Front panel
Claw
Claw
Claw
Claw
Mechanism unit

- Remove 5 claws.

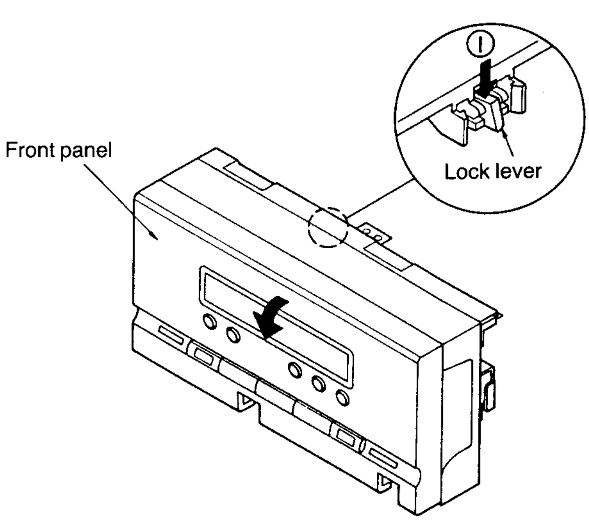
Ref. No.
6

Removal of the Front Panel

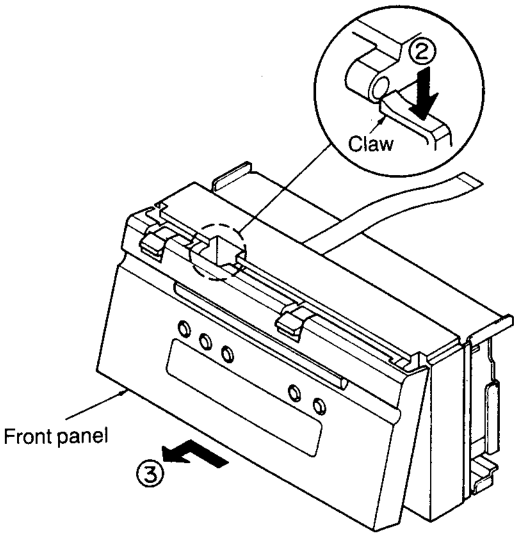
Procedure
1→2→4→6


Front panel
Eject button

1. Pull out the eject buttons. (DECK 1, DECK 2).


①
Lock lever
Front panel

2. Push the lever in the direction of the arrow ①, and then open the front panel.

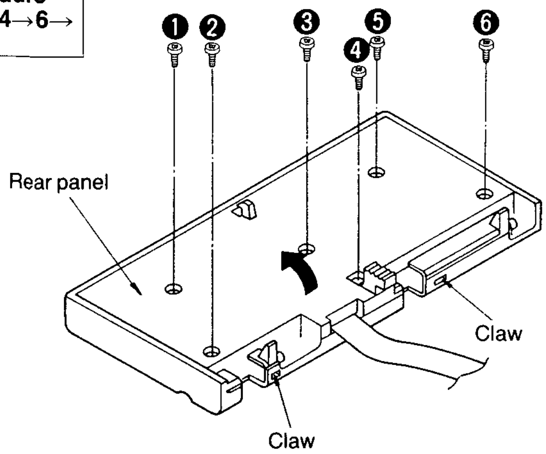

②
Claw
Front panel
③

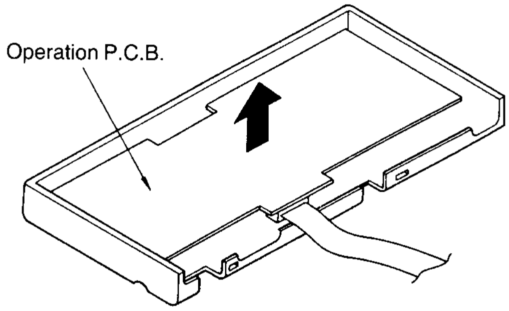
3. Push the claw in the direction of arrow ②, and then remove the front panel in the direction of arrow ③.

Ref. No.
7

Removal of the Operation P.C.B.

Procedure
1→2→4→6→7


❶
❷
❸
❹
❺
❻
Rear panel
Claw
Claw

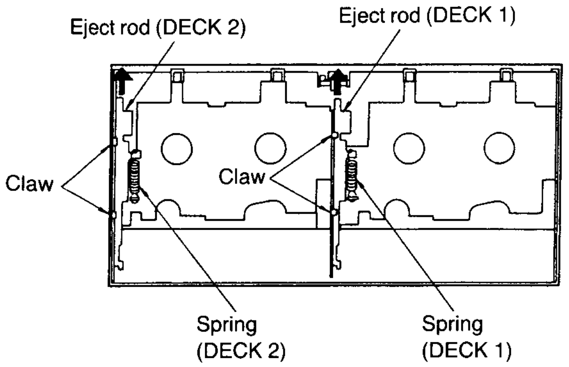

Operation P.C.B.

1. Remove 6 screws (❶~❻).
2. Remove 2 claws.
3. Remove the rear panel in the direction of arrow.
4. Remove the operation P.C.B. in the direction of arrow.

Ref. No.
8

Removal of the Eject rod (DECK 1 and DECK 2)

Procedure
1→2→4→5→6→8

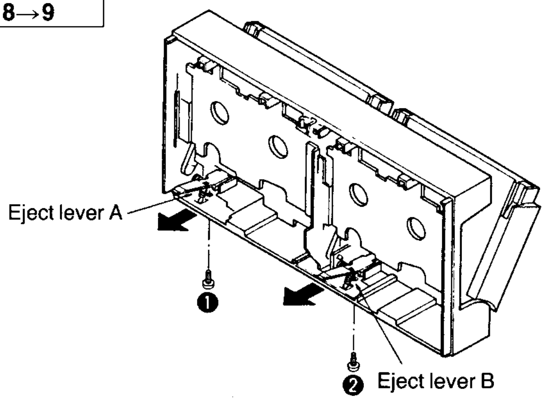

Eject rod (DECK 2)
Eject rod (DECK 1)
Claw
Claw
Spring
(DECK 2)
Spring
(DECK 1)

1. Push the eject rod in the direction of arrow and then open the cassette holder.
2. Remove the spring (DECK 1, DECK 2).
3. Press 4 claws and then remove the eject rod.

Ref. No.
9

Removal of the Eject Lever (A) and Eject Lever (B)

Procedure
1→2→4→5→6→8→9


Eject lever A
❶
❷
Eject lever B

•Removal of the Eject Angle (A)

1. Remove the screw (❶).
2. Pull out the eject angle (A).

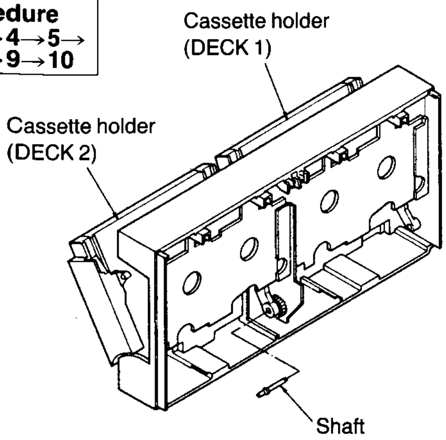
•Removal of the Eject Angle (B)

1. Remove the screw (❷).
2. Pull out the eject angle (B).

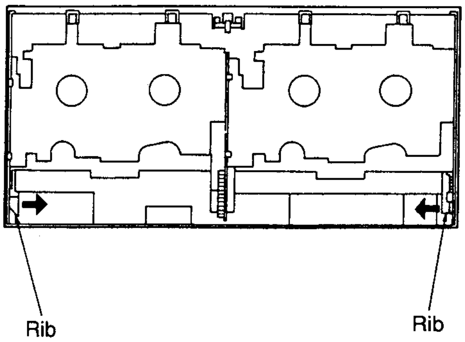
Ref. No.
10

Removal of the Cassette Holder (DECK 1 and DECK 2)

Procedure
1→2→4→5→6→8→9→10

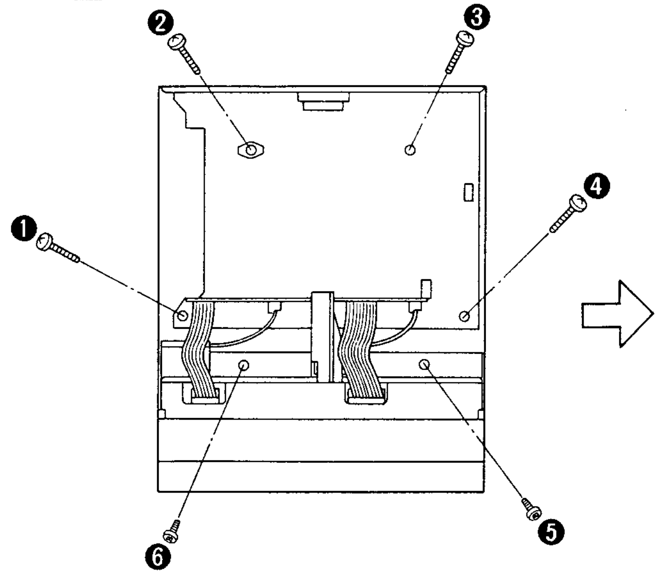

Cassette holder
(DECK 1)
Cassette holder
(DECK 2)
Shaft

1. Pull out the shaft.

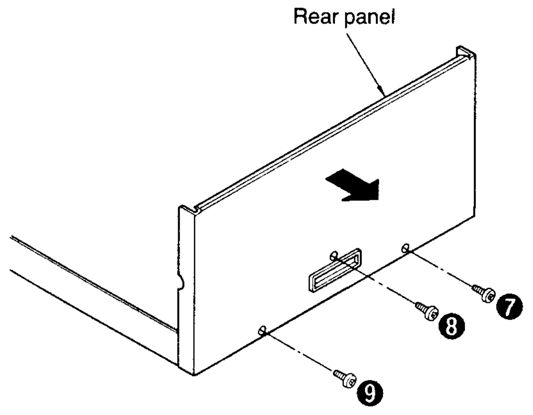


2. Push the rib in the direction of arrow and then remove the cassette holder.

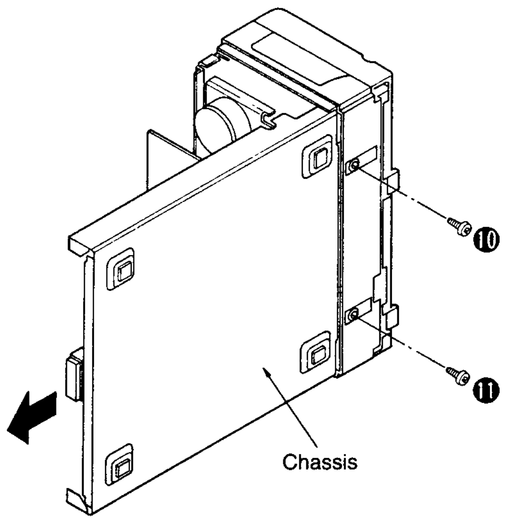
Ref. No. 11	Check of the Main P.C.B.
Procedure 1→11	



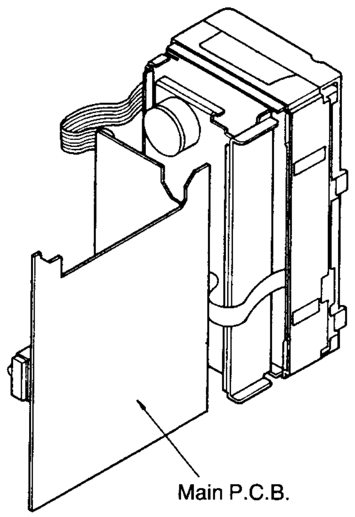
1. Remove 6 screws (❶~❻).


Rear panel
❼
❽
❾

2. Remove 3 screws (❼~❾).
3. Remove the rear panel in the direction of arrow.



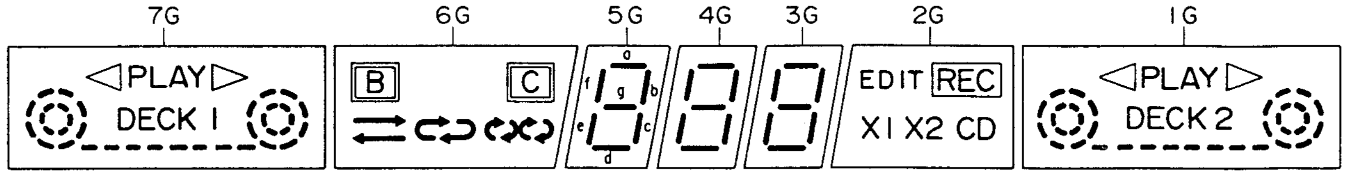
4. Remove 2 screws (❿~⓫).
5. Remove the chassis in the direction of arrow.

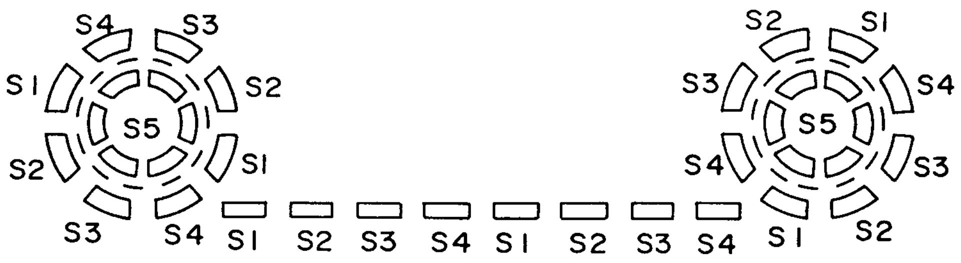


6. Check the main P.C.B. in the direction of arrow.

■ DESCRIPTION OF FL PANEL (RSL0088-F)

•Grid assignment


7G
6G
5G
4G
3G
2G
1G
◁PLAY▷
DECK 1
B
C
a
b
c
d
e
f
g
EDIT
REC
X1 X2 CD
◁PLAY▷
DECK 2


S4
S3
S1
S2
S5
S2
S1
S3
S4
S1
S2
S3
S4
S1
S2
S3
S4
S2
S1
S3
S4
S5
S4
S3
S1
S2

•Pin connection

Pin No.	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Connection	F+	F+	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NC	NC	7G	6G	5G	4G	3G	2G	1G	NP	F–	F–

•Anode connection

	7G	6G	5G	4G	3G	2G	1G
P1	◁	B	a	a	a	EDIT	◁
P2	PLAY	–	b	b	b	REC	PLAY
P3	S1	↺✕↻	c	c	c	×1	S1
P4	S3	–	d	d	d	CD	S3
P5	S2	↺↻	e	e	e	×2	S2
P6	▷	C	f	f	f	–	▷
P7	DECK1	⇄	g	g	g	–	DECK2
P8	S4	–	–	–	–	–	S4
P9	S5	–	–	–	–	–	S5

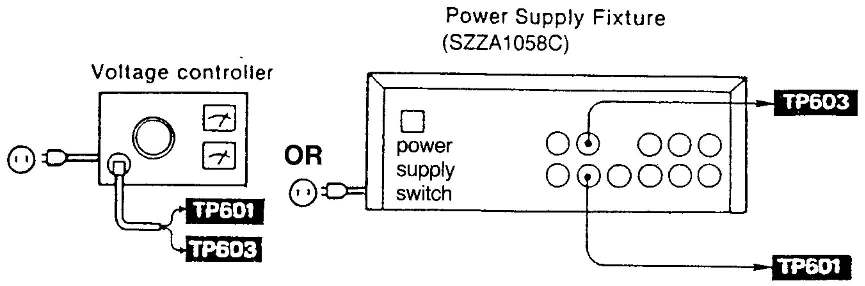
■ MEASUREMENTS AND ADJUSTMENTS

This tape deck (RS-CH7) is powered by the amplifier (SU-CH7).
To adjust or check operations on the tape deck as a separate unit, follow the steps below.

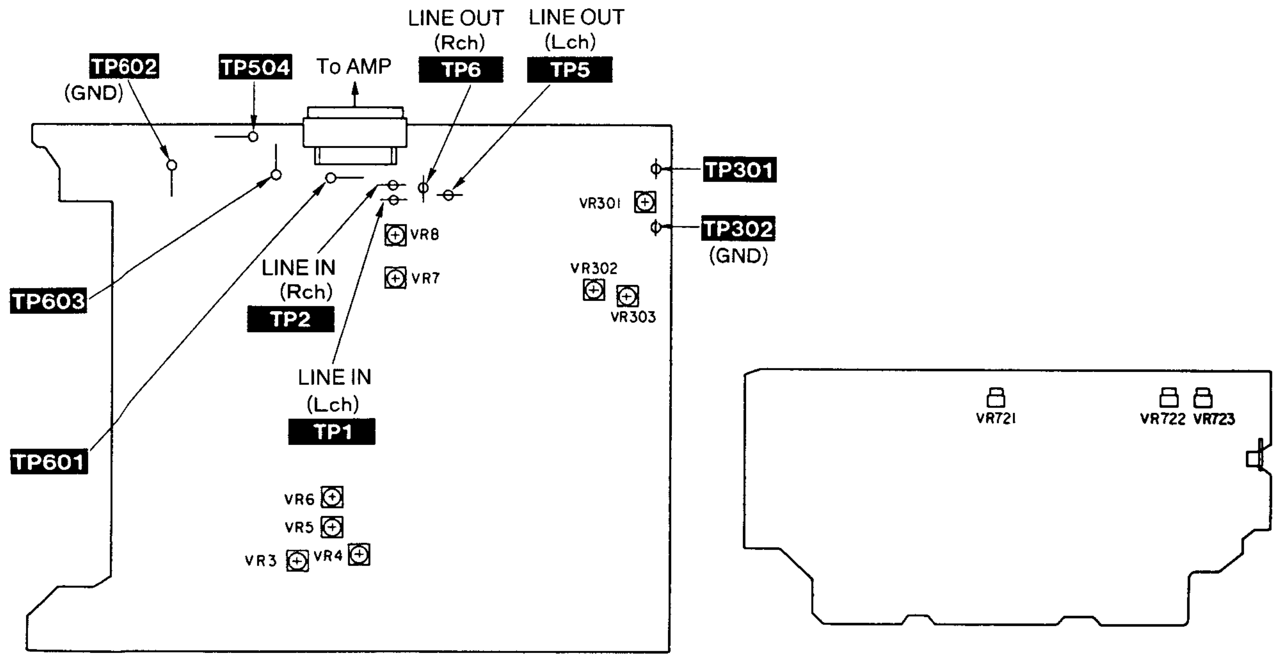
1. **Apply a power supply voltage of AC 20 V to TP601 and TP603 .**
2. **Short-circuit TP504 and TP602 (GND) (power supply switch: ON).**

• HOW TO CONNECT

Note:
Apply a power supply voltage of AC 20 V to TP601 and TP603 by using a Voltage Controller. If it is not available, use a Power Supply Fixture (SZZA1058C) instead.


Power Supply Fixture
(SZZA1058C)
Voltage controller
OR
power supply switch
TP603
TP601
TP603
TP601

•Adjustment points


LINE OUT (Rch)
LINE OUT (Lch)
TP602 (GND)
TP504
To AMP
TP6
TP5
TP301
VR301
TP302 (GND)
VR8
VR7
VR302
VR303
TP603
LINE IN (Rch)
TP2
LINE IN (Lch)
TP1
TP601
VR6
VR5
VR3
VR4
VR721
VR722
VR723

•Measurement Condition
- •Rec. level control; Maximum
- •Reverse-mode selector switch; ⇄
- •Edit-recording tape-speed selector; NORMAL
- •Timer-recording switch; off
- •Dolby NR switch; Off
- •Make sure heads are clean
- •Make sure capstan and pressure roller are clean
- •Judgeable room temperature 20±5°C (68±9°F)

•Measuring instrument
- •EVM (Electronic Voltmeter)
- •Oscilloscope
- •Digital frequency counter
- •AF oscillator
- •ATT (Attenuator)
- •DC voltmeter
- •Resistor (600Ω)

•Test tape
- •Head azimuth adjustment (8 kHz, −20 dB); QZZCFM
- •Tape speed adjustment (3 kHz, −10 dB); QZZCWAT
- •Playback frequency response (315 Hz, 12.5 kHz, 10 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz, 63 Hz, −20 dB); QZZCFM
- •Playback gain adjustment (315 Hz, 0 dB); QZZCFM
- •Overall frequency response, Overall gain adjustment Normal reference blank tape; QZZCRA
  CrO₂ reference blank tape; QZZCRX
  Metal reference blank tape; QZZCRZ

HEAD AZIMUTH ADJUSTMENT (DECK 1/2)

1. Playback the azimuth adjustment portion (8kHz, −20dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the outputs of the L-CH and R-CH are maximized and the lissajous waveform, as illustrated, approaches 0 degrees.

Note: If L-CH and R-CH are not maximized at the same point, adjust to the point where the levels of each channel are maximized and equal.

2. Perform the same adjustment in the play mode.
3. After the adjustment, apply screwlock to the azimuth adjusting screw.

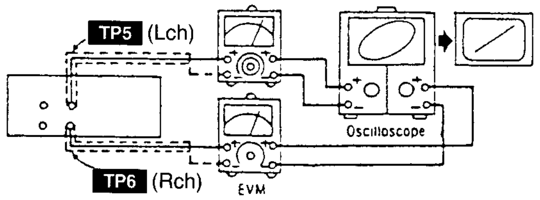

TP5 (Lch)
TP6 (Rch)
EVM
Oscilloscope

Fig. 1

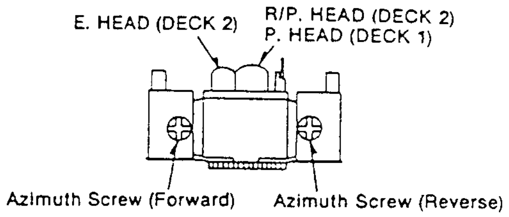

E. HEAD (DECK 2)
R/P. HEAD (DECK 2)
P. HEAD (DECK 1)
Azimuth Screw (Forward)
Azimuth Screw (Reverse)

Fig. 2

TAPE SPEED ADJUSTMENT (DECK 1/2)

Normal speed

1. Shift the edit-recording tape-speed selector to "**NORMAL**".
2. Playback the middle portion of the test tape (QZZCWAT).
3. Adjust Deck 1=**VR721** and Deck 2=**VR723** so that the output is within the standard value.

Standard value: 3000±15 Hz (NORMAL speed)

High speed [Set the unit to forward (FWD) mode.]

4. Push the edit speed button (SPEED). This will set the high speed mode.
5. Playback the middle portion on the test tape (QZZCWAT).
6. At that time, check if the output from DECK 1 is within the standard value.

Standard value: 6000±600 Hz (HIGH speed)

7. Adjust **VR722** so that the output frequency of DECK 2 is within **±30 Hz** of the value of the output frequency of DECK 1.

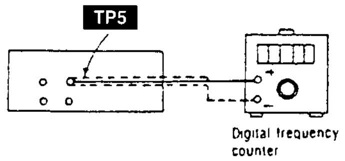

TP5
Digital frequency counter

Fig. 3

PLAYBACK GAIN ADJUSTMENT (DECK 1/2)

1. Playback the gain adjusted portion (315Hz, 0dB) of the test tape (QZZCFM).
2. Adjust Deck 2=**VR5** (L-CH) [[**VR6** (R-CH)]] and Deck 1=**VR3** (L-CH) [[**VR4** (R-CH)]] so that the output is within the standard value.

Standard value: 400 mV±0.5 dB

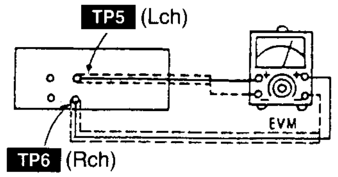

TP5 (Lch)
TP6 (Rch)
EVM

Fig. 4

PLAYBACK FREQUENCY RESPONSE (DECK 1/2)

1. Playback the frequency response portion (315Hz, 12.5kHz~63Hz, −20dB) of the test tape (QZZCFM).
2. Assure that the frequency response is within the range shown in **Fig. 6** for both L-CH and R-CH.

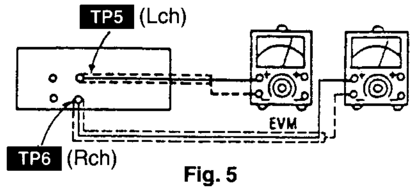

TP5 (Lch)
TP6 (Rch)
EVM

Fig. 5

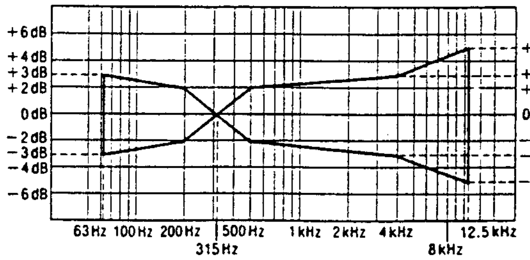


Fig. 6

ERASE CURRENT CONFIRMATION (DECK 2)

1. Insert the Metal blank test tape (QZZCRZ) and set the unit to the Record Pause mode.
2. Check if the output at this time between the erase current confirmation point **TP301** and **TP302** (chassis) (the output on both edges of R302) is within the standard value.

Standard value: 190 mA±5 mA (Metal)

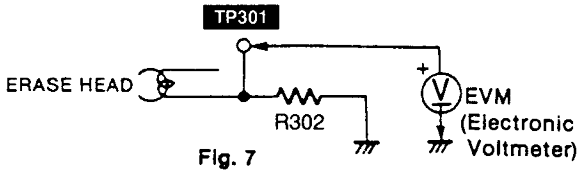

TP301
ERASE HEAD
R302
V
EVM
(Electronic
Voltmeter)

Fig. 7

OVERALL FREQUENCY RESPONSE (DECK 2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Apply a reference input signal (1 kHz, −24 dB) through an attenuator.
3. Attenuate the signal by 20dB and adjust the frequency from 50 Hz~10 kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in **Fig. 8** in comparison to the reference frequency (1 kHz).
6. If it is not within the standard range, adjust **VR302** (L-CH) and **VR303** (R-CH) so that the frequency level is within the standard range.
   - Level up in high frequency range ...... Increase the bias current.
   - Level down in high frequency range .. Decrease the bias current.
7. Repeat steps 2~6 above using the CrO₂ tape (QZZCRX) and the Metal tape (QZZCRZ) increasing the frequency range to 12.5 kHz (50 Hz~12.5 kHz).
8. Assure that the level is within the range shown in **Fig. 9**.

Normal Overall frequency response chart (NR OUT)

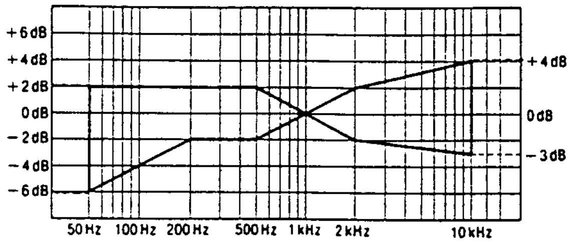


Fig. 8

CrO₂ Metal Overall frequency response chart (NR OUT)

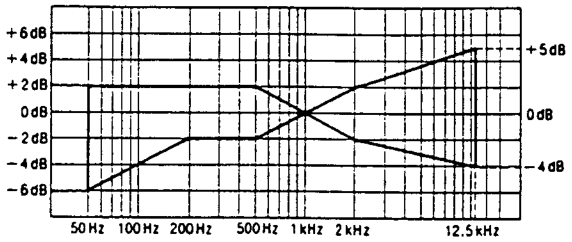


Fig. 9

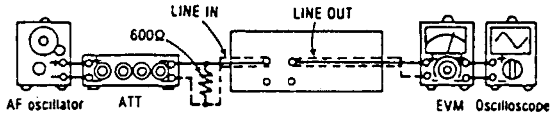

LINE IN
LINE OUT
600Ω
AF oscillator
ATT
EVM
Oscilloscope

Fig. 10

LINE IN (Lch): **TP1** LINE OUT (Lch): **TP5**
(Rch): **TP2** (Rch): **TP6**

OVERALL GAIN ADJUSTMENT (DECK 2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record pause mode.
2. Apply a reference input signal (1 kHz, −19 dB). Attenuate the output so that its level becomes 0.4 V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.
5. If it is not within the standard value, adjust **VR7** (L-CH) and **VR8** (R-CH).
6. Repeat the step 2~5 above until the output is within the standard value.

Standard value: 0.4 V±0.5 dB

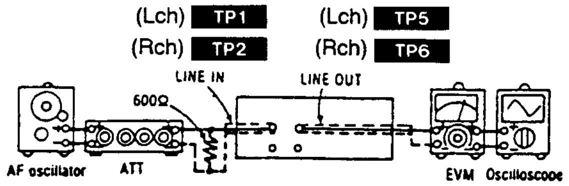
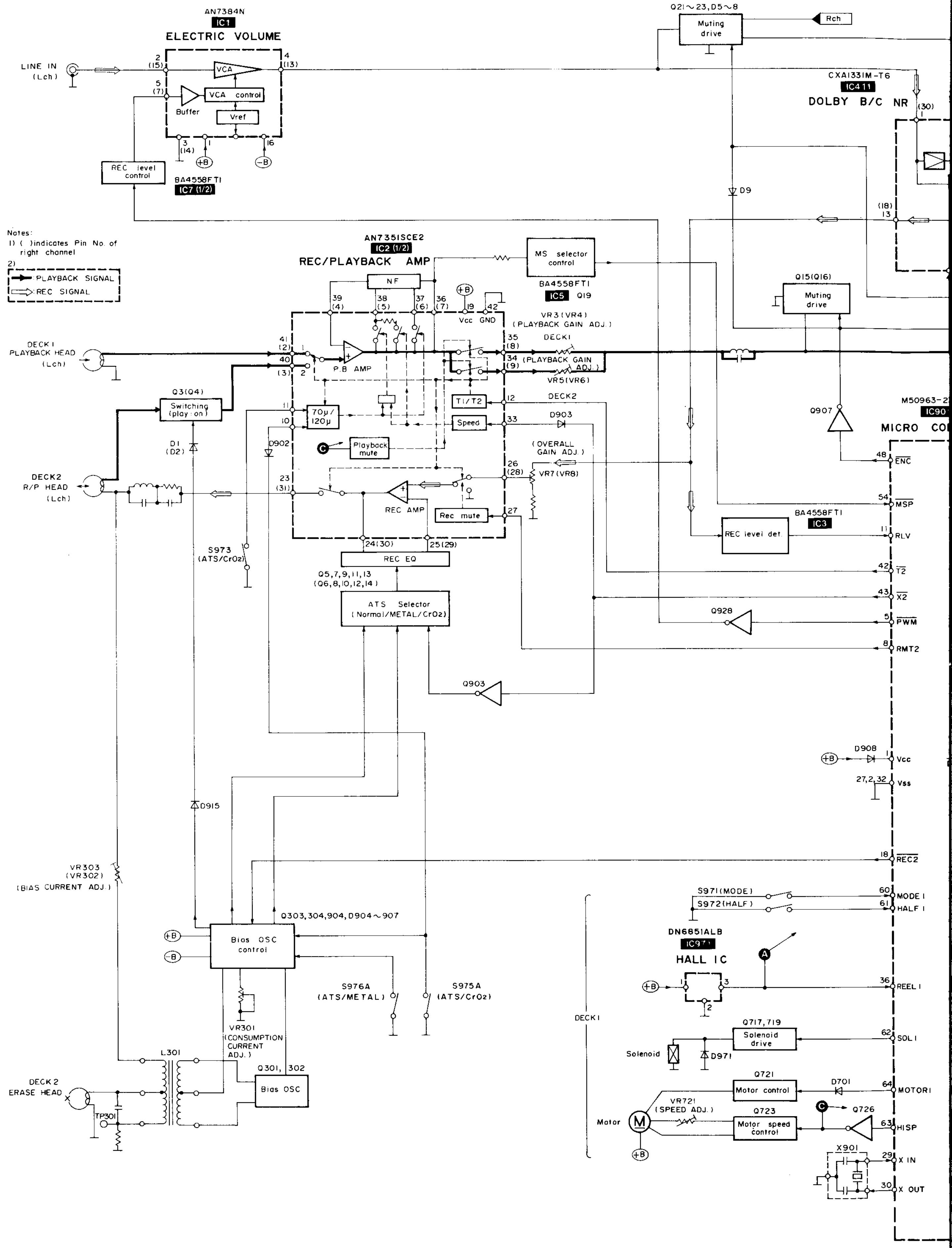
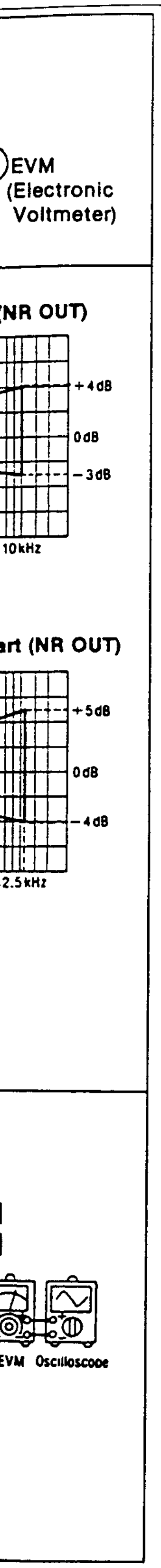

(Lch) TP1
(Rch) TP2
(Lch) TP5
(Rch) TP6
LINE IN
LINE OUT
600Ω
AF oscillator
ATT
EVM
Oscilloscope

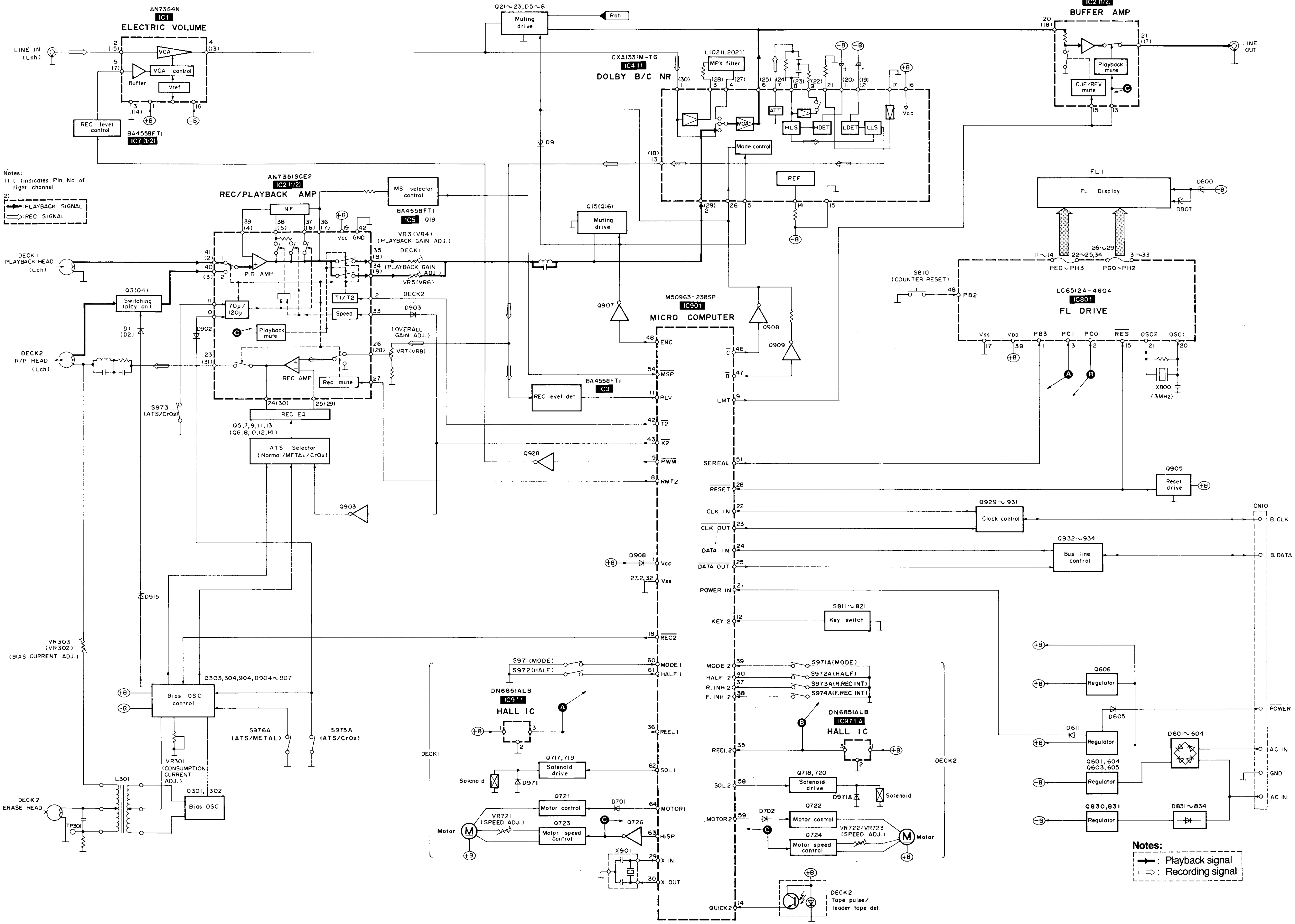
Fig. 11

■ BLOCK DIAGRAM


AN7384N
IC1
ELECTRIC VOLUME
LINE IN (Lch)
VCA
VCA control
Buffer
Vref
REC level control
BA4558FTI
IC7 (1/2)
Notes:
1) ( )indicates Pin No. of right channel
2)
PLAYBACK SIGNAL
REC SIGNAL
AN7351SCE2
IC2 (1/2)
REC/PLAYBACK AMP
NF
P.B AMP
Vcc GND
MS selector control
BA4558FTI
IC5 Q19
VR3 (VR4) (PLAYBACK GAIN ADJ.)
DECK1
VR5 (VR6) (PLAYBACK GAIN ADJ.)
DECK1 PLAYBACK HEAD (Lch)
Q3(Q4)
Switching (play on)
70μ/120μ
T1/T2
Speed
DECK2
D903
D1 (D2)
D902
Playback mute
(OVERALL GAIN ADJ.)
VR7 (VR8)
DECK2 R/P HEAD (Lch)
REC AMP
Rec mute
REC EQ
S973 (ATS/CrO2)
Q5,7,9,11,13 (Q6,8,10,12,14)
ATS Selector (Normal/METAL/CrO2)
Q903
D915
VR303 (VR302) (BIAS CURRENT ADJ.)
Q303,304,904,D904~907
Bias OSC control
VR301 (CONSUMPTION CURRENT ADJ.)
S976A (ATS/METAL)
S975A (ATS/CrO2)
L301
Q301,302
Bias OSC
DECK2 ERASE HEAD
TP301
Q21~23,D5~8
Muting drive
Rch
CXA1331M-T6
IC411
DOLBY B/C NR
D9
Q15(Q16)
Muting drive
Q907
BA4558FTI
IC3
REC level det.
Q928
M50963-2
IC90
MICRO CO
ENC
MSP
RLV
T2
X2
PWM
RMT2
D908
Vcc
Vss
REC2
S971(MODE)
S972(HALF)
MODE I
HALF I
DN6851ALB
IC9
HALL IC
REEL I
DECK1
Q717,719
Solenoid drive
Solenoid
D971
SOL I
Q721
Motor control
D701
MOTOR I
VR721 (SPEED ADJ.)
Q723
Motor speed control
Q726
Motor
HISP
X901
X IN
X OUT


EVM
(Electronic
Voltmeter)
(NR OUT)
+4dB
0dB
−3dB
10kHz
art (NR OUT)
+5dB
0dB
−4dB
2.5kHz
EVM Oscilloscope

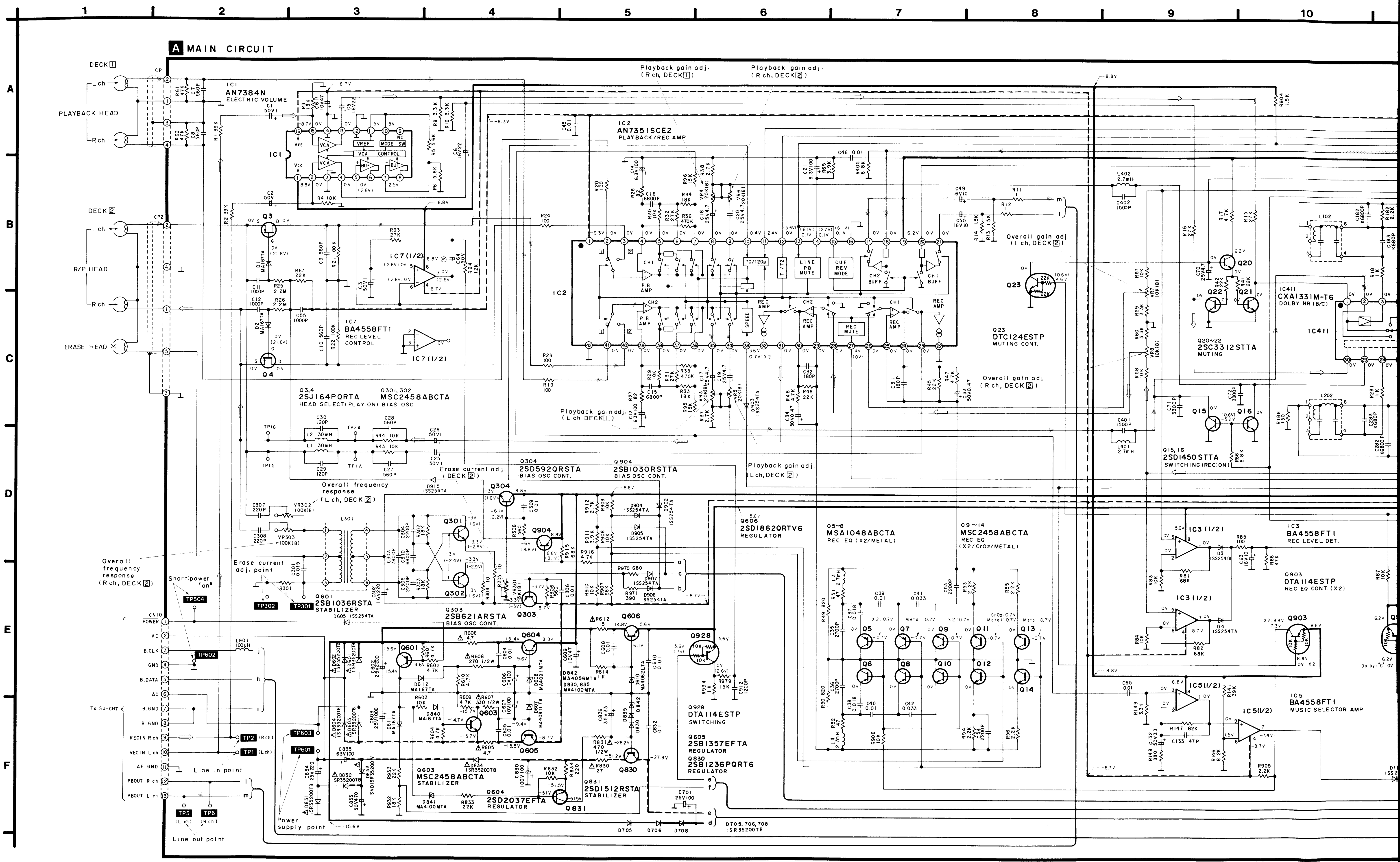
■ BLOCK DIAGRAM

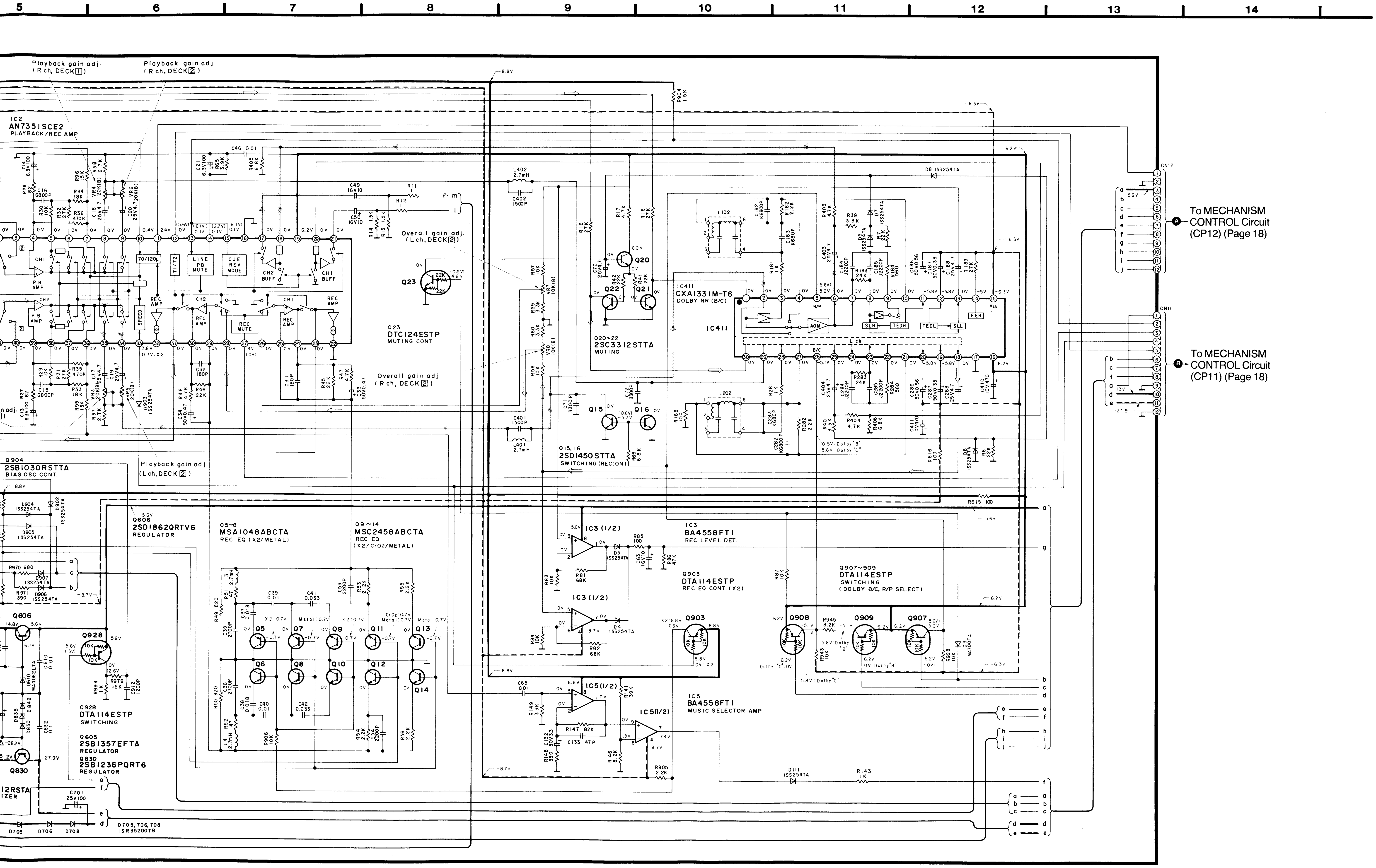

AN7384N
IC1
ELECTRIC VOLUME
LINE IN (Lch)
VCA
VCA control
Buffer
Vref
REC level control
BA4558FT1
IC7 (1/2)
Q21~23, D5~8
Muting drive
Rch
CXA1331M-T6
IC411
DOLBY B/C NR
L102 (L202)
MPX filter
MOA
ATT
HLS
HDET
LDET
LLS
Mode control
REF.
Vcc
AN7351SC
IC2 (1/2)
BUFFER AMP
Playback mute
CUE/REV mute
LINE OUT
AN7351SCE2
IC2 (1/2)
REC/PLAYBACK AMP
MS selector control
BA4558FT1
IC5 Q19
NF
Vcc GND
VR3 (VR4) (PLAYBACK GAIN ADJ.)
DECK1
PLAYBACK HEAD (Lch)
P.B AMP
VR5 (VR6)
T1/T2
Speed
DECK2
D903
Playback mute
(OVERALL GAIN ADJ.)
VR7 (VR8)
REC AMP
Rec mute
REC EQ
Q5, 7, 9, 11, 13 (Q6, 8, 10, 12, 14)
ATS Selector (Normal/METAL/CrO2)
Q3 (Q4)
Switching (play: on)
D1 (D2)
D902
DECK2 R/P HEAD (Lch)
S973 (ATS/CrO2)
D9
Q15 (Q16)
Muting drive
Q907
Q908
Q909
M50963-238SP
IC901
MICRO COMPUTER
ENC
MSP
RLV
T2
X2
PWM
RMT2
BA4558FT1
IC3
REC level det.
Q928
Q903
C̄ B̄ LMT
SEREAL
RESET
CLK IN
CLK OUT
DATA IN
DATA OUT
POWER IN
KEY 2
D908
Vcc
Vss
REC2
MODE 1
HALF 1
REEL 1
SOL 1
MOTOR 1
HISP
X IN
X OUT
QUICK 2
MODE 2
HALF 2
R. INH 2
F. INH 2
REEL 2
SOL 2
MOTOR 2
FL1
FL Display
D800
D807
S810 (COUNTER RESET)
PB2
LC6512A-4604
IC801
FL DRIVE
PE0~PH3
PG0~PH2
Vss VDD PB3 PC1 PC0 RES OSC2 OSC1
X800 (3MHz)
Q905
Reset drive
Q929~931
Clock control
Q932~934
Bus line control
CN10
B.CLK
B.DATA
POWER
AC IN
GND
AC IN
S811~821
Key switch
S971 (MODE)
S972 (HALF)
DN6851ALB
IC971
HALL IC
S971A (MODE)
S972A (HALF)
S973A (R.REC INT)
S974A (F.REC INT)
DN6851ALB
IC971A
HALL IC
DECK1
DECK2
Q717, 719
Solenoid drive
Solenoid
D971
Q721
Motor control
D701
VR721 (SPEED ADJ.)
Q723
Motor speed control
Q726
Motor
X901
Q718, 720
Solenoid drive
D971A
Solenoid
Q722
Motor control
D702
VR722/VR723 (SPEED ADJ.)
Q724
Motor speed control
Motor
DECK2 Tape pulse/ leader tape det.
Q606
Regulator
D605
D611
Regulator
D601~604
Q601, 604 Q603, 605
Regulator
Q830, 831
Regulator
D831~834
D915
VR303 (VR302) (BIAS CURRENT ADJ.)
Q303, 304, 904, D904~907
Bias OSC control
S976A (ATS/METAL)
S975A (ATS/CrO2)
VR301 (CONSUMPTION CURRENT ADJ.)
Q301, 302
Bias OSC
L301
DECK2 ERASE HEAD
TP301
A
B
C

Notes:
1) ( ) indicates Pin No. of right channel
2)
➡ PLAYBACK SIGNAL
⇨ REC SIGNAL

Notes:
➡ : Playback signal
⇨ : Recording signal

■ SCHEMATIC DIAGRAM (Parts list on pages 25~28)


1 2 3 4 5 6 7 8 9 10
A B C D E F
A MAIN CIRCUIT
DECK 1
L ch
R ch
PLAYBACK HEAD
DECK 2
R/P HEAD
ERASE HEAD
CP1
CP2
IC1 AN7384N ELECTRIC VOLUME
IC2 AN7351SCE2 PLAYBACK/REC AMP
IC7 BA4558FT1 REC LEVEL CONTROL
IC7 (1/2)
Q3
Q4
Q3,4 2SJ164PQRTA HEAD SELECT (PLAY:ON)
Q301, 302 MSC2458ABCTA BIAS OSC
Q304 2SD592QRSTA BIAS OSC CONT.
Q904 2SB1030RSTTA BIAS OSC CONT.
Q601 2SB1036RSTA STABILIZER
Q303 2SB621ARSTA BIAS OSC CONT.
Q603 MSC2458ABCTA STABILIZER
Q604 2SD2037EFTA REGULATOR
Q606 2SD1862QRTV6 REGULATOR
Q928 DTA114ESTP SWITCHING
Q605 2SB1357EFTA REGULATOR
Q830 2SB1236PQRT6 REGULATOR
Q831 2SD1512RSTA STABILIZER
Q5~8 MSA1048ABCTA REC EQ (X2/METAL)
Q9~14 MSC2458ABCTA REC EQ (X2/CrO2/METAL)
Q23 DTC124ESTP MUTING CONT.
Q20~22 2SC3312STTA MUTING
Q15, 16 2SD1450STTA SWITCHING (REC:ON)
IC411 CXA1331M-T6 DOLBY NR (B/C)
IC3 BA4558FT1 REC LEVEL DET.
IC3 (1/2)
Q903 DTA114ESTP REC EQ CONT. (X2)
IC5 BA4558FT1 MUSIC SELECTOR AMP
IC5 (1/2)
Playback gain adj. (R ch, DECK 1)
Playback gain adj. (R ch, DECK 2)
Playback gain adj. (L ch DECK 1)
Playback gain adj. (L ch, DECK 2)
Overall gain adj. (L ch, DECK 2)
Overall gain adj (R ch, DECK 2)
Overall frequency response (L ch, DECK 2)
Overall frequency response (R ch, DECK 2)
Erase current adj. (DECK 2)
Erase current adj. point
Short:power "on"
TP504
TP302
TP301
TP602
TP2 (R ch)
TP1 (L ch)
TP603
TP601
TP5 (L ch)
TP6 (R ch)
TP16
TP15
TP2A
TP1A
Line in point
Line out point
Power supply point
To SU-CH7
CN10
POWER
AC
B.CLK
GND
B.DATA
AC
B.GND
B.GND
RECIN R ch
RECIN L ch
AF GND
PBOUT R ch
PBOUT L ch
L901 100μH
L301
L402 2.7mH
L401 2.7mH
L102
L202
D705, 706, 708 1SR35200TB
D705 D706 D708
C701 25V100
VREF
MODE SW
VCA
CONTROL
BUF
P.B AMP
REC AMP
LINE PB MUTE
CUE REV MODE
70/120μ
T1/T2
SPEED
REC MUTE
CH1 BUFF
CH2 BUFF
8.8V
-8.7V
-6.3V
5.6V
-15.6V
-27.9V
-51.5V


5
6
7
8
9
10
11
12
13
14
Playback gain adj. (R ch, DECK 1)
Playback gain adj. (R ch, DECK 2)
IC2
AN7351SCE2
PLAYBACK/REC AMP
P.B AMP
CH1
CH2
REC AMP
CH2 BUFF
CH1 BUFF
LINE PB MUTE
CUE REV MODE
70/120μ
T1/T2
SPEED
REC MUTE
Overall gain adj. (L ch, DECK 2)
Overall gain adj (R ch, DECK 2)
Playback gain adj. (L ch, DECK 2)
Q23
DTC124ESTP
MUTING CONT.
Q20
Q21
Q22
Q20~22
2SC3312STTA
MUTING
Q15
Q16
Q15, 16
2SD1450STTA
SWITCHING (REC:ON)
IC411
CXA1331M-T6
DOLBY NR (B/C)
L102
L202
AOM
SLH
TEDH
TEDL
SLL
FER
VEE
R/P
B/C
L ch
D8 1SS254TA
CN12
CN11
To MECHANISM CONTROL Circuit (CP12) (Page 18)
To MECHANISM CONTROL Circuit (CP11) (Page 18)
Q904
2SB1030RSTTA
BIAS OSC CONT.
Q606
2SD1862QRTV6
REGULATOR
Q5~8
MSA1048ABCTA
REC EQ (X2/METAL)
Q9~14
MSC2458ABCTA
REC EQ (X2/CrO2/METAL)
IC3 (1/2)
IC3
BA4558FT1
REC LEVEL DET.
Q903
DTA114ESTP
REC EQ CONT. (X2)
Q907~909
DTA114ESTP
SWITCHING (DOLBY B/C, R/P SELECT)
Q908
Q909
Q907
IC5 (1/2)
IC5
BA4558FT1
MUSIC SELECTOR AMP
Q928
DTA114ESTP
SWITCHING
Q605
2SB1357EFTA
REGULATOR
Q830
2SB1236PQRT6
REGULATOR
Q830
D705, 706, 708
1SR35200TB
D705
D706
D708
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
R615 100
D111 1SS254TA
R143 1K
R905 2.2K
Dolby "B"
Dolby "C"

Notes:

- S810 : Counter reset switch in "OFF" position. (COUNTER RESET)
- S811 : Stop switch in "OFF" position. (STOP)
- S812, 813 : FF/REW/MS switch. (S812: ▶▶, S813: ◀◀)
- S814, 815 : Playback switch. (S814: ▶, S815: ◀)
- S816 : Rec pause switch. (REC PAUSE)
- S817 : DECK 1/DECK 2 selector switch.
- S818 : Synchro start switch. (SYNCHRO START)
- S819 : Edit speed switch. (SPEED)
- S820 : Dolby NR switch in "OFF" position.
- S821 : Reverse mode switch. (REVERSE MODE)
- S971A~976A : DECK 2 mechanism leaf switch.
  - S971A: Mode detect.
  - S972A: Half detect.
  - S973A: Reverse side record prevention tab detect.
  - S974A: Forward side record prevention tab detect.
  - S975A: ATS (CrO₂).
  - S976A: ATS (Metal).
- S971~973 : Deck 1 mechanism leaf switch.
  - S971: Mode detect.
  - S972: Half detect.
  - S973: ATS (CrO₂).

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
  Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  No mark...Playback ( )...Recording
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  When replacing any of these components, use only manufacturer's specified parts.
- **This schematic diagram may be modified at any time with the development of new technology.**

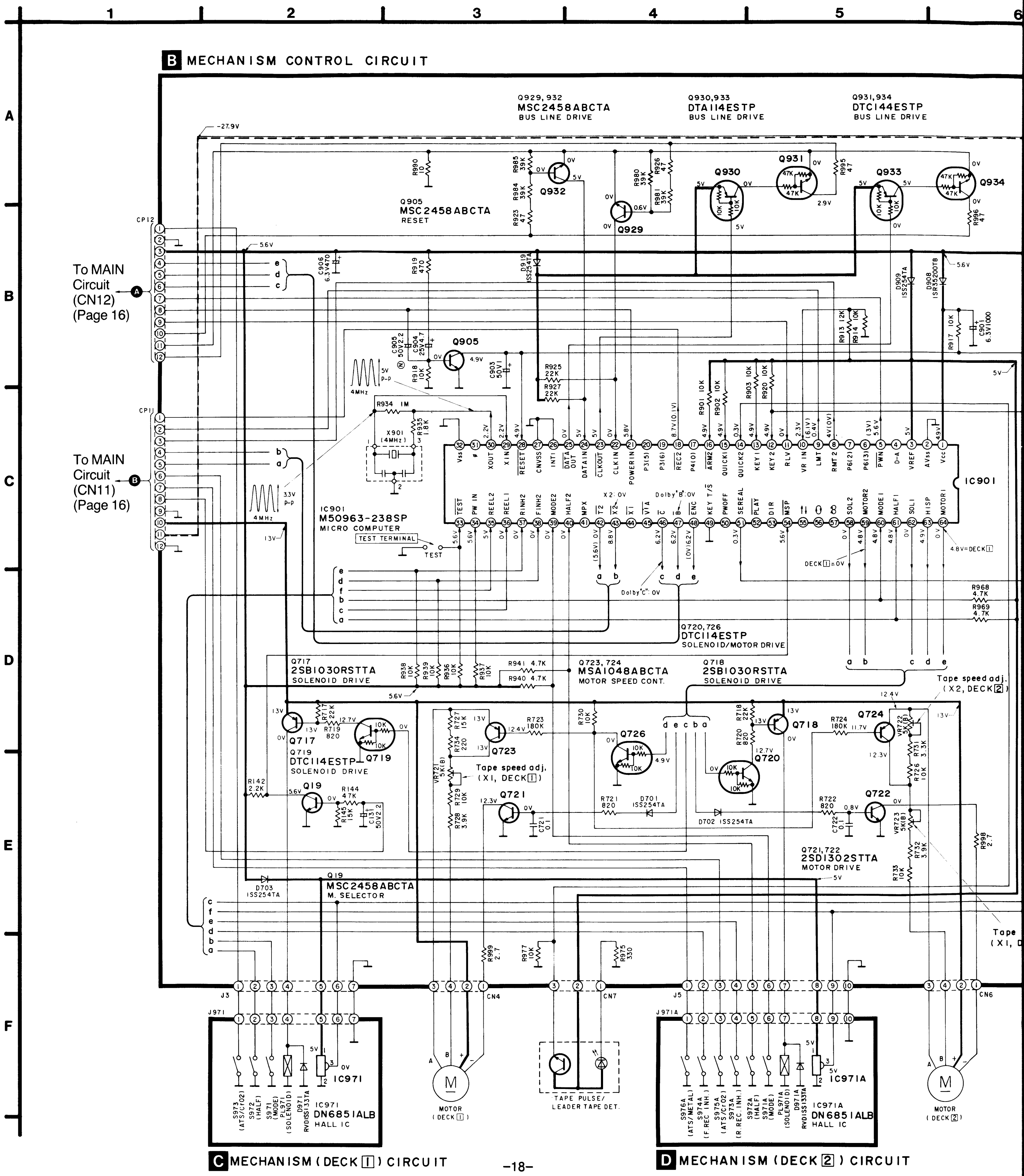
▬▬ : Positive voltage line
▨⇨ : Playback signal
▬ ▬ ▬ : Negative voltage line
⇨ : Recording signal line

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the word table.
- Do not touch the legs of IC or LSI with the fingers directly.

- The supply part number is described alone in the replacement parts list.

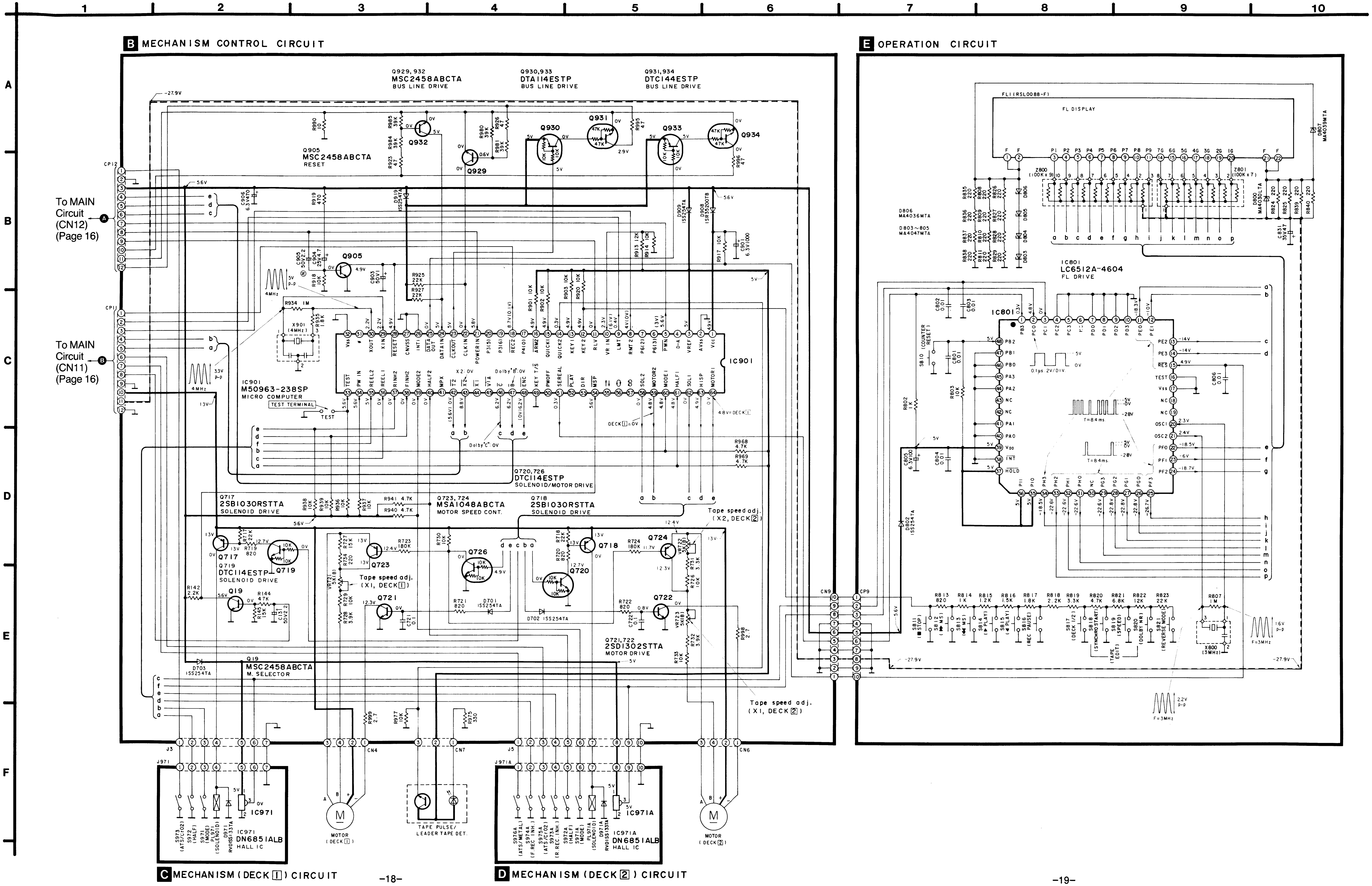
Ref. No.	Production Part No.	Supply Part No.
IC3, 5, 7	BA4558FT1	SVIBA4558F

■ SCHEMATIC DIAGRAM (Parts list on pages 25~28.)



1 2 3 4 5 6
A B C D E F
B MECHANISM CONTROL CIRCUIT
Q929,932 MSC2458ABCTA BUS LINE DRIVE
Q930,933 DTA114ESTP BUS LINE DRIVE
Q931,934 DTC144ESTP BUS LINE DRIVE
Q905 MSC2458ABCTA RESET
To MAIN Circuit (CN12) (Page 16)
To MAIN Circuit (CN11) (Page 16)
CP12
CP11
X901 (4MHz)
IC901 M50963-238SP MICRO COMPUTER
TEST TERMINAL
TEST
Q720,726 DTC114ESTP SOLENOID/MOTOR DRIVE
Q717 2SB1030RSTTA SOLENOID DRIVE
Q723,724 MSA1048ABCTA MOTOR SPEED CONT.
Q718 2SB1030RSTTA SOLENOID DRIVE
Q719 DTC114ESTP SOLENOID DRIVE
Tape speed adj. (X1, DECK 1)
Tape speed adj. (X2, DECK 2)
Q721,722 2SD1302STTA MOTOR DRIVE
Q19 MSC2458ABCTA M. SELECTOR
D703 1SS254TA
D701 1SS254TA
D702 1SS254TA
J3
J971
CN4
CN7
J5
J971A
CN6
S973 (ATS/CrO2)
S972 (HALF)
S971 (MODE)
PL971 (SOLENOID)
D971 RVD1SS133TA
IC971 DN6851ALB HALL IC
MOTOR (DECK 1)
TAPE PULSE/LEADER TAPE DET.
S976A (ATS/METAL)
S974A (F.REC INH.)
S975A (ATS/CrO2)
S973A (R.REC.INH.)
S972A (HALF)
S971A (MODE)
PL971A (SOLENOID)
D971A RVD1SS133TA
IC971A DN6851ALB HALL IC
MOTOR (DECK 2)
C MECHANISM (DECK 1) CIRCUIT
D MECHANISM (DECK 2) CIRCUIT

■ SCHEMATIC DIAGRAM (Parts list on pages 25~28.)


1
2
3
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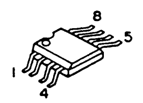
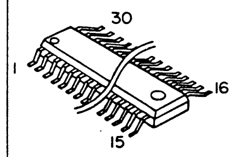
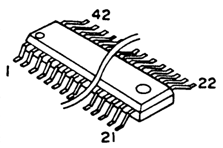
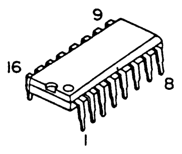
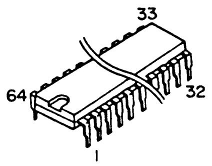
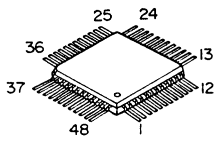
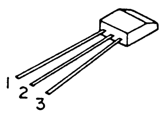
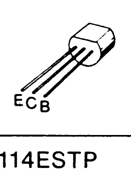
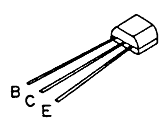
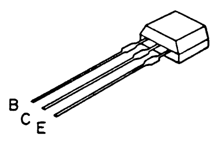
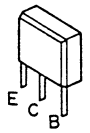
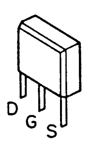
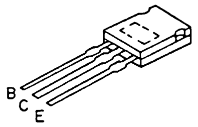
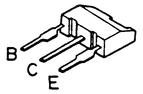
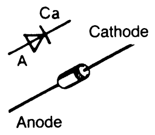
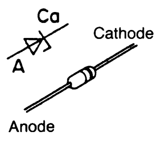
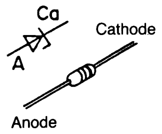
A
B
C
D
E
F
B MECHANISM CONTROL CIRCUIT
E OPERATION CIRCUIT
C MECHANISM (DECK 1) CIRCUIT
D MECHANISM (DECK 2) CIRCUIT
To MAIN Circuit (CN12) (Page 16)
To MAIN Circuit (CN11) (Page 16)
CP12
CP11
Q929, 932 MSC2458ABCTA BUS LINE DRIVE
Q930,933 DTA114ESTP BUS LINE DRIVE
Q931,934 DTC144ESTP BUS LINE DRIVE
Q905 MSC2458ABCTA RESET
IC901 M50963-238SP MICRO COMPUTER
TEST TERMINAL
TEST
IC901
Q720,726 DTC114ESTP SOLENOID/MOTOR DRIVE
Q717 2SB1030RSTTA SOLENOID DRIVE
Q723, 724 MSA1048ABCTA MOTOR SPEED CONT.
Q718 2SB1030RSTTA SOLENOID DRIVE
Q719 DTC114ESTP SOLENOID DRIVE
Tape speed adj. (X2, DECK 2)
Tape speed adj. (X1, DECK 1)
Tape speed adj. (X1, DECK 2)
Q721,722 2SD1302STTA MOTOR DRIVE
Q19 MSC2458ABCTA M. SELECTOR
D703 1SS254TA
D701 1SS254TA
D702 1SS254TA
J3
J971
CN4
CN7
J5
J971A
CN6
IC971 DN6851ALB HALL IC
IC971A DN6851ALB HALL IC
MOTOR (DECK 1)
MOTOR (DECK 2)
TAPE PULSE/ LEADER TAPE DET.
FL1 (RSL0088-F)
FL DISPLAY
IC801 LC6512A-4604 FL DRIVE
IC801
D806 MA4036MTA
D803~805 MA4047MTA
D807 MA4039MTA
D800 MA4030LTA
Z800 (100K x 9)
Z801 (100K x 7)
CN9
CP9
S810 (COUNTER RESET)
S811 (■STOP)
S812 (▶▶ MS)
S813 (◀◀ MS)
S814 (▶ PLAY)
S815 (◀ PLAY)
S816 (REC PAUSE)
S817 (DECK 1/2)
S818 (SYNCHRO START)
S819 (SPEED)
S820 (DOLBY NR)
S821 (REVERSE MODE)
(TAPE EDIT)
X800 (3MHz)
X901 (4MHz)
4MHz
F=3MHz
T=8.4ms
-27.9V
5V
-28V

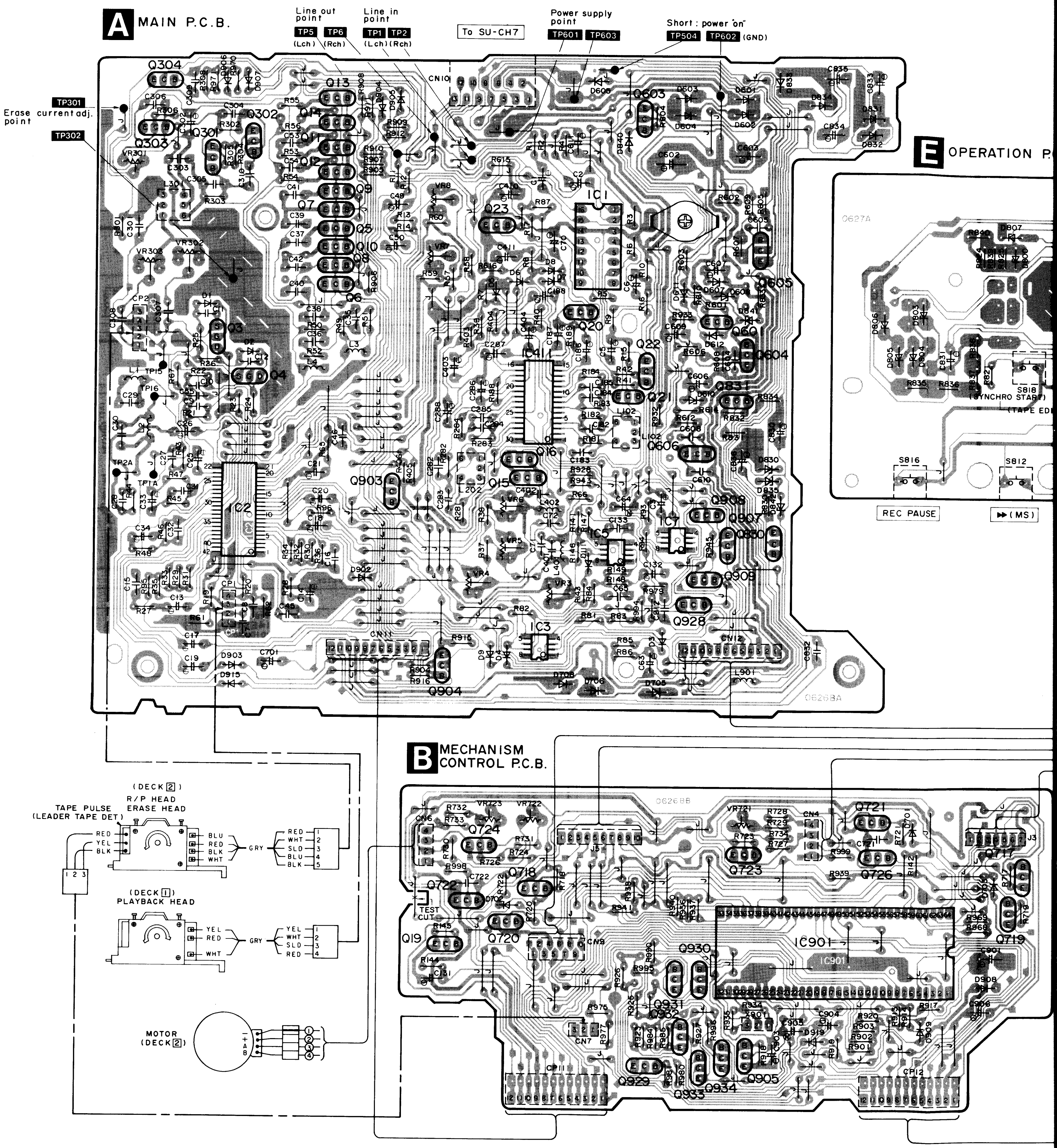
■ PRINTED CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

•Terminal guide of IC's, transistors and diodes

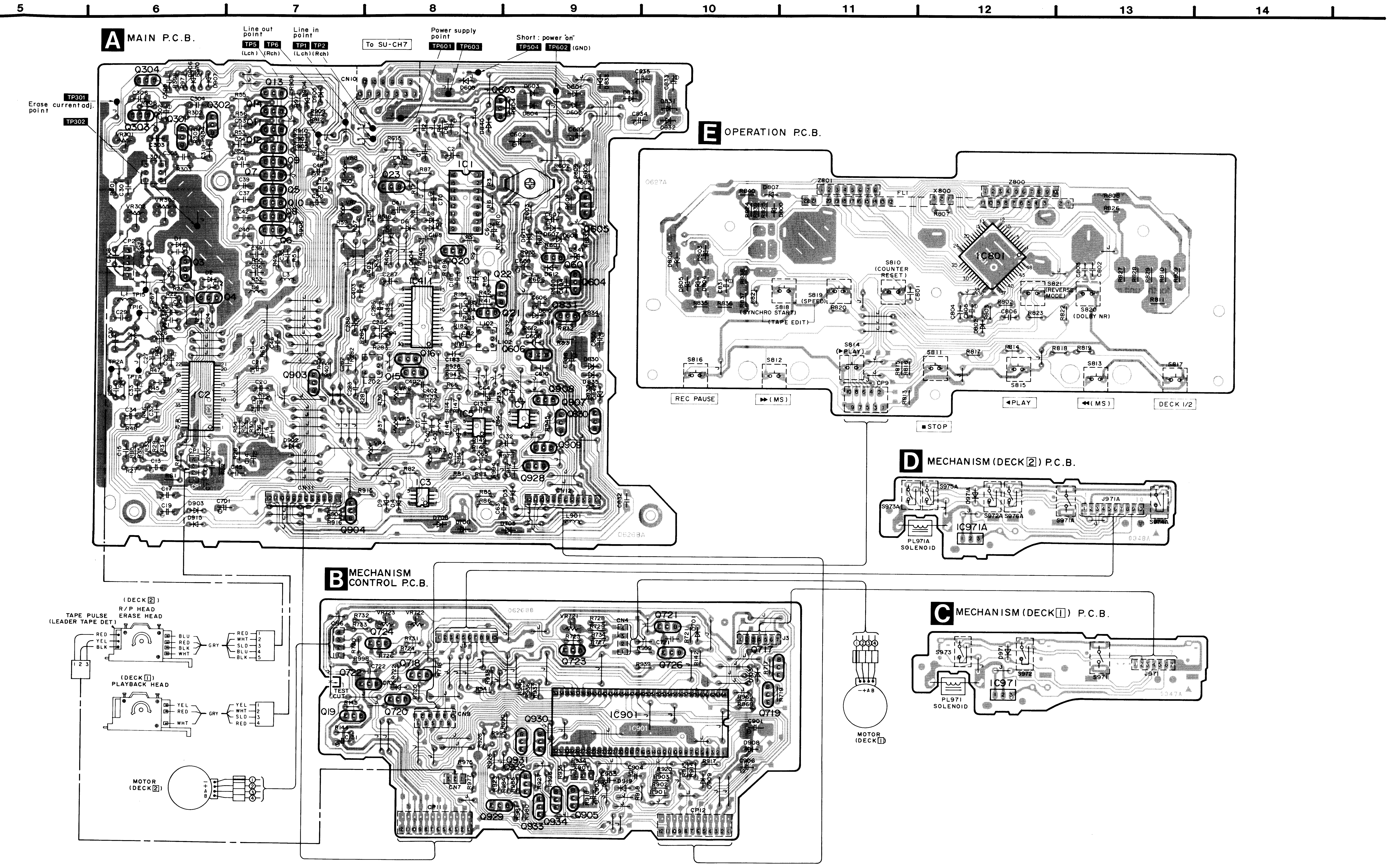
BA4558FT1 	CXA1331M-T6 	AN7351SC 
AN7384N 	M50963-238SP 	LC6512A-4604  25 24 36 13 37 12 48 1
DN6851A 	2SB621ARSTA 2SD592QRSTA 2SD1302STTA 	MSA1048ABCTA MSC2458ABCTA 
	DTA114ESTP DTC114ESTP DTC124ESTP DTC144ESTP	2SB1030RSTTA 2SC3312STTA 2SD1450STTA 
2SJ164PQRTA 	2SB1357EFTA 2SD2037EFTA 	2SB1240QRTV6 2SD1862QRTV6 
 Ca Cathode A Anode	MA167TA MA700TA 1SS254TA 1SR35200TB	MA4130MTA  Ca Cathode A Anode
 Ca Cathode A Anode	MA4030LTA MA4036MTA MA4039MTA MA4047MTA MA4062LTA MA4091LTA	

NOTES:

BLK	Black	ORG	Orange
BLU	Blue	PNK	Pink
BRN	Brown	RED	Red
GRY	Gray	SLD	Shield Wire
GRN	Green	VLT	Violet
L.BLU........	Light Blue	WHT	White
		YEL	Yellow


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
A MAIN P.C.B.
Line out point
TP5 TP6
(Lch) (Rch)
Line in point
TP1 TP2
(Lch) (Rch)
To SU-CH7
Power supply point
TP601 TP603
Short : power "on"
TP504 TP602 (GND)
TP301
Erase current adj. point
TP302
IC1
IC2
IC3
IC4
IC5
IC7
CN10
CN11
CN12
E OPERATION P
REC PAUSE
▶▶(MS)
S816
S812
S818
(SYNCHRO START)
(TAPE ED
B MECHANISM CONTROL P.C.B.
IC901
CN4
CN6
CN7
CN9
CP11
CP12
TEST CUT
(DECK 2)
R/P HEAD
ERASE HEAD
TAPE PULSE (LEADER TAPE DET)
RED
YEL
BLK
BLU
RED
BLK
WHT
GRY
RED
WHT
SLD
BLU
BLK
(DECK 1)
PLAYBACK HEAD
YEL
RED
WHT
GRY
YEL
WHT
SLD
RED
MOTOR (DECK 2)

AM


5
6
7
8
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11
12
13
14
A MAIN P.C.B.
Line out point
TP5 TP6
(Lch) (Rch)
Line in point
TP1 TP2
(Lch) (Rch)
To SU-CH7
Power supply point
TP601 TP603
Short : power "on"
TP504 TP602 (GND)
TP301
Erase current adj. point
TP302
CN10
IC1
IC2
IC3
IC4
IC5
IC7
CN11
CN12
E OPERATION P.C.B.
IC801
FL1
S810 (COUNTER RESET)
S818 (SYNCHRO START)
(TAPE EDIT)
S819 (SPEED)
S821 (REVERSE MODE)
S820 (DOLBY NR)
S814 (▶PLAY)
S816
S812
S811
S815
S813
S817
REC PAUSE
▶▶(MS)
◀PLAY
◀◀(MS)
DECK 1/2
■STOP
D MECHANISM (DECK 2) P.C.B.
S973A
S975A
S972A
S976A
S971A
S974A
J971A
IC971A
PL971A SOLENOID
B MECHANISM CONTROL P.C.B.
IC901
CN4
CN7
CN9
CP11
CP12
J3
TEST CUT
MOTOR (DECK 1)
C MECHANISM (DECK 1) P.C.B.
S973
S972
S971
J971
IC971
PL971 SOLENOID
(DECK 2)
R/P HEAD
ERASE HEAD
TAPE PULSE (LEADER TAPE DET)
RED
YEL
BLK
BLU
WHT
SLD
GRY
(DECK 1)
PLAYBACK HEAD
MOTOR (DECK 2)

■ FUNCTION OF IC TERMINALS

•IC801 (LC6512A–4604)

Pin No.	Mark	I/O Division	Function
1	PB3	I	Serial data input
2	PC0	I/O	Deck 2 Rotation pulse signal of reel table
3	PC1	I/O	Deck 1 Rotation pulse signal of reel table
4 ≀ 10	——	——	Connected to GND
11 ≀ 14	PE0 ≀ PE3	O	FL port signal output
15	$\overline{\text{RES}}$	I	Reset terminal
16	TEST	——	Connected to GND
17	VSS		
18	NC	——	Not connected
19			
20	OSC1	I/O	Connected to ceramic oscillator (X800)
21	OSC2		
22 ≀ 25	PF0 ≀ PF3	O	FL port signal output
26 ≀ 29	PG0 ≀ PG3	O	FL grid signal output
30	NC	——	Not connected
31 ≀ 34	PH0 ≀ PH3	O	FL grid signal output
35 • 36	P10 • P11	——	Not connected
37	$\overline{\text{HOLD}}$		
38	$\overline{\text{INT}}$	——	Connected to GND
39	VDD	I	Power supply (+5.6 V)
40 ≀ 47	——	——	Connected to GND
48	PB2	I	Counter reset terminal

•IC901 (M50963-236SP)

Pin No.	Mark	I/O Division	Function
1	VCC	I	Power supply (+5 V)
2	AVSS	——	Connected to GND
3	VREF	I	Reference voltage input (+5 V)
4	NC	——	Not connected
5	$\overline{\text{PWN}}$	O	Control voltage terminal of electric volume
6	NC	——	Not connected
7			
8	RMT2	O	Rec, amp, mute signal of deck 2 "L" level in mute is off mode "H" level in mute is on mode
9	LMT	O	Line out mute signal
10	VR IN	I	Not used and connected to resistance
11	RLV	I	Recording level detection (at ATLS position)
12	KEY2	I	Key switch input Pin 13 is not used and connected to resistance
13	KEY1		
14	QUICK2	O	Pin 15 is not used and connected to resistance
15	QUICK1		
16	$\overline{\text{ARM2}}$	I	Mute key input Not used ad connected to resistance
17	NC	——	Not connected
18	$\overline{\text{REC2}}$	I	Recording bias control voltage terminal "L" level when is on "H" level when is off
19	NC	——	Not connected
20			
21	POWER IN	I	Power ON/OFF detection terminal
22	CLK IN	I	Clock input for serial data
23	$\overline{\text{CLK OUT}}$	O	Clock output for serial data
24	DATA IN	I	Serial data input
25	$\overline{\text{DATA OUT}}$	O	Serial data output
26	NC	——	Connected to Vss
27	CNVSS	——	Conencted to Vss
28	$\overline{\text{RESET}}$	I	Reset terminal "L" level when reset is off mode "L"→"H" level when reset is on mode
29	X IN	I	Clock OSC terminal Connected to crystal oscillator
30	X OUT	O	
31	NC	——	Not used
32	Vss	——	Connected to GND
33	$\overline{\text{TEST}}$	——	Test terminal ("L" level)
34	PW IN	I	Not used
35	REEL2	I	Deck 2 Rotation pulse signal of reel table
36	REEL1	I	Deck 1 Rotation pulse signal of reel table
37	RINH2	I	Deck 2 Reverse Rec. Inh. switch select terminal
38	FINH2	I	Deck 2 Forward Rec. Inh. switch select terminal
39	MODE2	I	Deck 2 mechanism mode switch select terminal
40	HALF2	I	Deck 2 cassette half detection switch "L" level in half detection switch is on mode. "H" level in half detection switch is off mode.
41	MPX	——	Not used
42	$\overline{\text{T2}}$	O	Deck 2 play select signal "L" level with PLAY mode.
43	$\overline{\text{X2}}$	O	X2 Speed LED display "L" level when LED is on mode
44	$\overline{\text{X1}}$	O	Not used
45	$\overline{\text{VIA}}$	——	
46	$\overline{\text{C}}$	O	Dolby C LED display "L" level when LED is on mode "H" level when other mode
47	B	O	
48	$\overline{\text{ENC}}$	O	Encode/Decode select signal "L" level in encode mode "H" level in decode mode
49	KEY T/$\overline{\text{S}}$	——	Not use and connected to GND
50	PW OFF	——	Not used
51	SEREAL	O	Control for FL micro computer Serial data output
52	$\overline{\text{PLAY}}$	O	Not used
53	DIR	O	
54	$\overline{\text{MSP}}$	O	Music search signal detection terminal
55	⇄	O	Not used
56	⟲	O	
57	⟲✕	O	
58	SOL2	O	Deck 2 Solenoid control signal "H" level when solenoid is on mode "L" level when solenoid is off mode
59	MOTOR2	O	Deck 2 Motor control signal "H" level when motor is on mode "L" level when motor is off mode
60	MODE1	I	Deck 1 mechanism mode switch select terminal
61	HALF1	I	Deck 1 cassette half detection switch "L" level in half detection switch is on mode "H" level in half detection switch is off mode
62	SOL1	O	Deck 1 Solenoid control signal "H" level when solenoid is on mode "L" level when solenoid is off mode
63	HISP	O	Motor speed control signal "L" level when normal speed "H" level when high speed
64	MOTOR1	O	Deck 1 Motor control signal "H" level when motor is on mode "L" level when motor is off mode

■ REPLACEMENT PARTS LIST

Notes : • Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
• The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	AN7384N	I. C, ELECTRIC VOLUME	
IC2	AN7351SCE2	I. C, PLAYBACK/REC AMP.	
IC3	SVIBA4558F	I. C, REC LEVEL DET.	
IC5	SVIBA4558F	I. C, MUSIC SEL. AMP.	
IC7	SVIBA4558F	I. C, REC LEVEL CONT.	
IC411	CXA1331M-T6	I. C, DOLBY NR, (B/C)	
IC801	LC6512A-4604	I. C, FL DRIVE	
IC901	M50963-238SP	I. C, MICRO COMPUTER	
IC971	DN6851ALB	I. C, HALL	
IC971A	DN6851ALB	I. C, HALL	
		TRANSISTOR(S)	
Q3, 4	2SJ164PQRTA	TRANSISTOR	
Q5-8	MSA1048ABCTA	TRANSISTOR	
Q9	MSC2458ABCTA	TRANSISTOR	
Q10-14	MSC2458ABCTA	TRANSISTOR	
Q15, 16	2SD1450STTA	TRANSISTOR	
Q19	MSC2458ABCTA	TRANSISTOR	
Q20-22	2SC3312STTA	TRANSISTOR	
Q23	DTC124EST	TRANSISTOR	
Q301, 302	MSC2458ABCTA	TRANSISTOR	
Q303	2SB621A-R	TRANSISTOR	
Q304	2SD592NCR	TRANSISTOR	
Q601	2SB1036RSTA	TRANSISTOR	
Q603	MSC2458ABCTA	TRANSISTOR	
Q604	2SD2037EFTA	TRANSISTOR	
Q605	2SB1357EFTA	TRANSISTOR	
Q606	2SD1862QRTV6	TRANSISTOR	
Q717, 718	2SB1030QTA	TRANSISTOR	
Q719, 720	DTC114ESTP	TRANSISTOR	
Q721, 722	2SD1302STTA	TRANSISTOR	
Q723, 724	MSA1048ABCTA	TRANSISTOR	
Q726	DTC114ESTP	TRANSISTOR	
Q830	2SB1236PQRT6	TRANSISTOR	
Q831	2SD1512R	TRANSISTOR	
Q903	DTA114ESTP	TRANSISTOR	
Q904	2SB1030QTA	TRANSISTOR	
Q905	MSC2458ABCTA	TRANSISTOR	
Q907-909	DTA114ESTP	TRANSISTOR	
Q928	DTA114ESTP	TRANSISTOR	
Q929	MSC2458ABCTA	TRANSISTOR	
Q930	DTA114ESTP	TRANSISTOR	
Q931	DTC144EKT96	TRANSISTOR	
Q932	MSC2458ABCTA	TRANSISTOR	
Q933	DTA114ESTP	TRANSISTOR	
Q934	DTC144EKT96	TRANSISTOR	
		DIODE(S)	
D1, 2	MA167	DIODE	
D3-8	1SS254TA	DIODE	
D9	MA700TA	DIODE	
D111	1SS254TA	DIODE	
D601-604	1SR35200TB	DIODE	⚠
D605	1SS254TA	DIODE	
D607	MA4091LTA	DIODE	
D608	MA4091-M	DIODE	
D610	MA4062	DIODE	
D611, 612	MA167	DIODE	
D701-703	1SS254TA	DIODE	
D705, 706	1SR35200TB	DIODE	
D708	1SR35200TB	DIODE	
D800	MA4030LTA	DIODE	
D802	1SS254TA	DIODE	
D803-805	MA4047MTA	DIODE	
D806	MA4036MTA	DIODE	
D807	MA4039MTA	DIODE	
D830	MA4100MTA	DIODE	
D831, 832	1SR35200TB	DIODE	⚠
D833	SVD1SR35200A	DIODE	⚠
D834	1SR35200TB	DIODE	⚠
D835	MA4100MTA	DIODE	
D840	MA167	DIODE	
D841	MA4100MTA	DIODE	
D842	MA4056MTA	DIODE	
D902-907	1SS254TA	DIODE	
D908	1SR35200TB	DIODE	
D909	1SS254TA	DIODE	
D915	1SS254TA	DIODE	
D919	1SS254TA	DIODE	
D971	RVD1SS133TA	DIODE	
D971A	RVD1SS133TA	DIODE	
		VARIABLE RESISTOR(S)	
VR3-6	EVNDXAA00B24	V. R, PLAYBACK GAIN ADJ.	
VR7, 8	EVNDXAA00B14	V. R, REC/PLAYBACK LEVEL ADJ.	
VR301	EVNDXAA00B53	V. R, ERASE CURRENT ADJ.	
VR302, 303	EVNDXAA00B15	V. R, OVERALL FREQ. ADJ.	
VR721-723	EVNDCAA03B53	V. R, TAPE SPEED ADJ.	
		COMPONENT COMBINATION(S)	
Z800	EXBF10E104J	COMPONENT COMBINATION	
Z801	EXBF8E104J	COMPONENT COMBINATION	
		COIL(S)	
L1, 2	SLQX303-1KT	COIL	
L3, 4	SLQX272-1YT	COIL	
L102	RLM2B005-1M	COIL	
L202	RLM2B005-1M	COIL	
L301	SL09B4-K	COIL	
L401, 402	SLQX272-1YT	COIL	
L901	ELEXT101KA9	COIL	
		OSCILLATOR(S)	
X800	EF0GC3004T4	OSCILLATOR	
X901	EF0GC4004A4	OSCILLATOR	
		DISPLAY	
FL1	RSL0088-F	DISPLAY	
		SWITCH(ES)	
S810	EVQ21405R	SW, COUNTER RESET	
S811	EVQ21405R	SW, STOP	
S812	EVQ21405R	SW, MS (FF)	
S813	EVQ21405R	SW, MS (REW)	
S814	EVQ21405R	SW, F PLAY	
S815	EVQ21405R	SW, R PLAY	
S816	EVQ21405R	SW, REC PAUSE	
S817	EVQ21405R	SW, DECK 1/2	
S818	EVQ21405R	SW, SYNCHRO START	
S819	EVQ21405R	SW, SPEED	
S820	EVQ21405R	SW, DOLBY NR	
S821	EVQ21405R	SW, REVERSE MODE	
S971	RSH1A89Z	SW, MODE (DECK1)	
S971A	RSH1A89Z	SW, MODE (DECK2)	
S972	RSH1A90YB-U	SW, HALF (DECK1)	
S972A	RSH1A90YB-U	SW, HALF (DECK2)	
S973	RSH1A90YB-U	SW, ATS/Cr02 (DECK1)	
S973A	RSH1A90YB-U	SW, R. REC INH(DECK2)	
S974A	RSH1A90YB-U	SW, F. REC INH(DECK2)	
S975A	RSH1A90YB-U	SW, ATS/Cr02 (DECK2)	
S976A	RSH1A90YB-U	SW, ATS/METAL (DECK2)	
		CONNECTOR(S)	
CN4	RJS1A1704	SOCKET(4P)	
CN6	RJS1A1704	SOCKET(4P)	
CN7	SJTD313	CONNECTOR(3P)	
CN9	RJS10Q8ZA	SOCKET(10P)	
CN10	RJT055B013	CONNECTOR(13P)	
CN11, 12	RJT057W012-1	CONNECTOR(12P)	
CP1	SJTD413	CONNECTOR(4P)	
CP2	RJP5G18ZA	CONNECTOR(5P)	
CP9	RJS10Q9ZA	SOCKET(10P)	
CP11, 12	RJU057W012	SOCKET(12P)	
J3	RJS7T4ZA	SOCKET(7P)	
J5	SJSD1005	SOCKET(10P)	

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1, 2	ERDS2TJ393	1/4W 39K
R3, 4	ERDS2TJ183T	1/4W 18K
R5, 6	ERDS2TJ562	1/4W 5.6K
R7, 8	ERDS2TJ223	1/4W 22K
R9	ERDS2TJ332	1/4W 3.3K
R10	ERDS2TJ332	1/4W 3.3K
R11, 12	ERDS2TJ1R0	1/4W 1.0
R13, 14	ERDS2TJ152	1/4W 1.5K
R15, 16	ERDS2TJ273	1/4W 27K
R17	ERDS2TJ472	1/4W 4.7K
R19, 20	ERDS2TJ101	1/4W 100
R21, 22	ERDS2TJ104	1/4W 100K
R23, 24	ERDS2TJ101	1/4W 100
R25, 26	ERDS2TJ225	1/4W 2.2M
R27, 28	ERDS2EJ820	1/4W 82
R29, 30	ERDS2TJ103	1/4W 10K
R31, 32	ERDS2TJ273	1/4W 27K
R33, 34	ERDS2TJ183T	1/4W 18K
R35, 36	ERDS2TJ474	1/4W 470K
R37, 38	ERDS2TJ272T	1/4W 2.7K
R39, 40	ERDS2TJ332	1/4W 3.3K
R41, 42	ERDS2TJ223	1/4W 22K
R43, 44	ERDS2TJ103	1/4W 10K
R45, 46	ERDS2TJ223	1/4W 22K
R47, 48	ERDS2TJ472	1/4W 4.7K
R49, 50	ERDS2TJ821	1/4W 820
R51, 52	ERDS2TJ470	1/4W 47
R53-56	ERDS2TJ222	1/4W 2.2K
R57, 58	ERDS2TJ103	1/4W 10K
R59, 60	ERDS2TJ332	1/4W 3.3K
R61, 62	ERDS2TJ473	1/4W 47K
R65	ERDS2TJ392T	1/4W 3.9K
R66	ERDS2TJ682T	1/4W 6.8K
R67	ERDS2TJ223	1/4W 22K
R81, 82	ERDS2TJ683	1/4W 68K
R83, 84	ERDS2TJ103	1/4W 10K
R85	ERDS2TJ101	1/4W 100
R86	ERDS2TJ473	1/4W 47K
R87	ERDS2TJ103	1/4W 10K
R93	ERDS2TJ273	1/4W 27K
R94	ERDS2TJ123	1/4W 12K
R95, 96	ERDS2TJ153	1/4W 15K
R141	ERDS2TJ393	1/4W 39K
R142	ERDS2TJ222	1/4W 2.2K
R143	ERDS2TJ102	1/4W 1K
R144	ERDS2TJ473	1/4W 47K

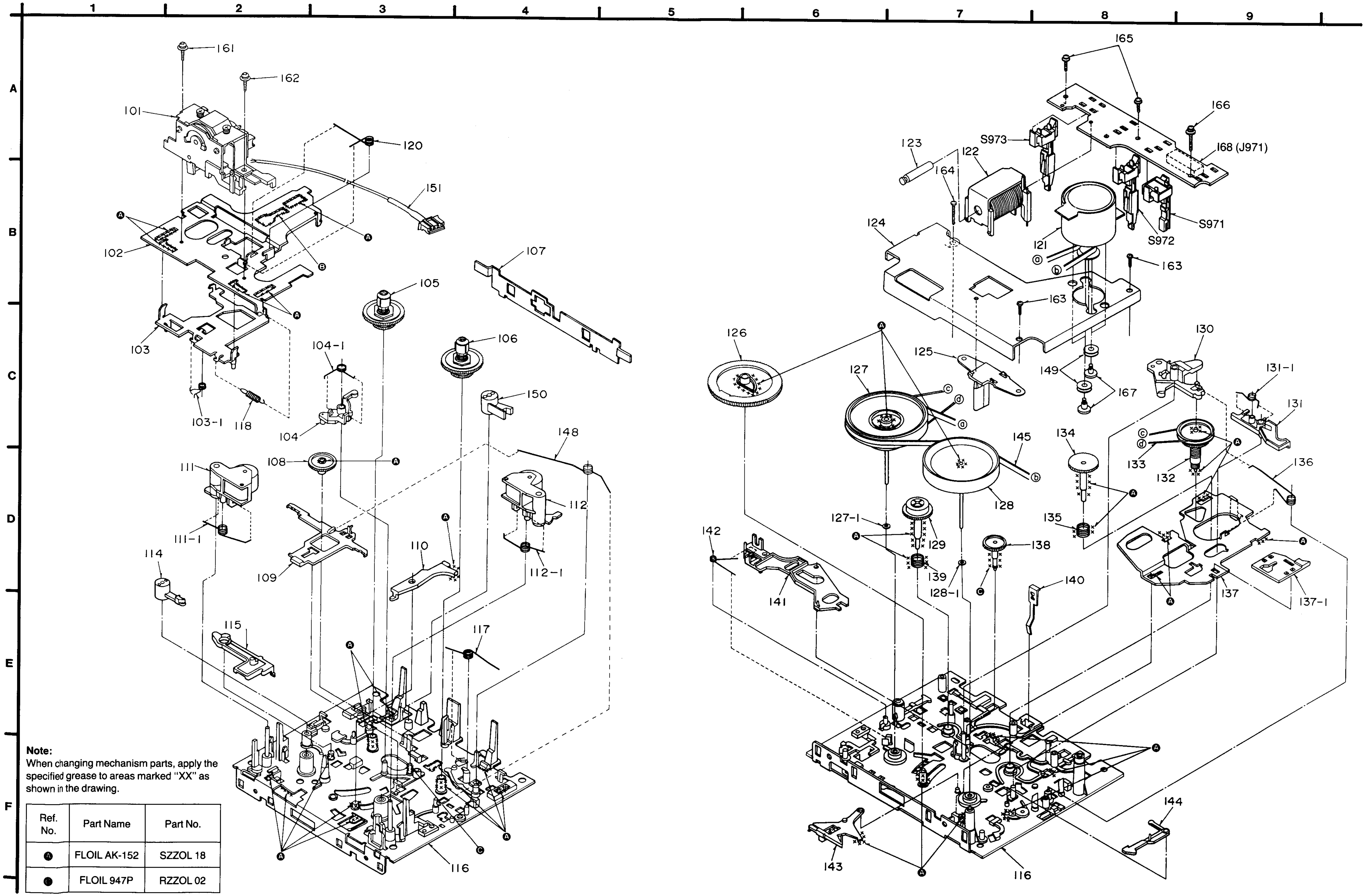
Ref. No.	Part No.	Values & Remarks
R145	ERDS2TJ153	1/4W 15K
R146	ERDS2TJ822	1/4W 8.2K
R147	ERDS2TJ823T	1/4W 82K
R148	ERDS2TJ331	1/4W 330
R149	ERDS2TJ332	1/4W 3.3K
R181	ERDS2TJ102	1/4W 1K
R182	ERDS2TJ222	1/4W 2.2K
R183	ERDS2TJ243T	1/4W 24K
R184	ERDS2TJ561	1/4W 560
R188	ERDS2TJ151	1/4W 150
R189	ERDS2TJ273	1/4W 27K
R281	ERDS2TJ102	1/4W 1K
R282	ERDS2TJ222	1/4W 2.2K
R283	ERDS2TJ243T	1/4W 24K
R284	ERDS2TJ561	1/4W 560
R301	ERDS2TJ1R0	1/4W 1.0
R302, 303	ERDS2TJ183T	1/4W 18K
R304, 305	ERDS2TJ100	1/4W 10
R306	ERDS2TJ561	1/4W 560
R308	ERDS2TJ561	1/4W 560
R403, 404	ERDS2TJ472	1/4W 4.7K
R405, 406	ERDS2TJ682T	1/4W 6.8K
R601, 602	ERDS2TJ472	1/4W 4.7K
R603	ERDS2TJ103	1/4W 10K
R604	ERDS2TJ472	1/4W 4.7K
R605, 606	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R607	ERDS1FVJ331T	1/2W 330 ⚠
R608	ERDS1FVJ271T	1/2W 270 ⚠
R609, 610	ERDS2TJ472	1/4W 4.7K
R612	ERD2FCVG150T	1/4W 15 ⚠
R614	ERDS2TJ102	1/4W 1K
R615, 616	ERDS2TJ101	1/4W 100
R717, 718	ERDS2TJ223	1/4W 22K
R719-722	ERDS2TJ821	1/4W 820
R723, 724	ERDS2TJ184T	1/4W 180K
R726	ERDS2TJ103	1/4W 10K
R727	ERDS2TJ153	1/4W 15K
R728	ERDS2TJ392T	1/4W 3.9K
R729, 730	ERDS2TJ103	1/4W 10K
R731	ERDS2TJ332	1/4W 3.3K
R732	ERDS2TJ392T	1/4W 3.9K
R733	ERDS2TJ103	1/4W 10K
R734	ERDS2TJ221	1/4W 220
R802	ERDS2TJ102	1/4W 1K
R803	ERDS2TJ103	1/4W 10K
R807	ERDS2TJ105T	1/4W 1M
R808-811	ERDS2TJ221	1/4W 220
R813	ERDS2TJ821	1/4W 820
R814	ERDS2TJ102	1/4W 1K

Ref. No.	Part No.	Values & Remarks
R815	ERDS2TJ122	1/4W 1.2K
R816	ERDS2TJ152	1/4W 1.5K
R817	ERDS2TJ182	1/4W 1.8K
R818	ERDS2TJ222	1/4W 2.2K
R819	ERDS2TJ332	1/4W 3.3K
R820	ERDS2TJ472	1/4W 4.7K
R821	ERDS2TJ682T	1/4W 6.8K
R822	ERDS2TJ123	1/4W 12K
R823	ERDS2TJ223	1/4W 22K
R824-829	ERDS2TJ221	1/4W 220
R830	ERD2FCVG270T	1/4W 27 ⚠
R831	ERDS1FVJ471T	1/2W 470 ⚠
R832	ERDS2TJ103	1/4W 10K
R833	ERDS2TJ223	1/4W 22K
R834-840	ERDS2TJ221	1/4W 220
R901-903	ERDS2TJ103	1/4W 10K
R904	ERDS2TJ152	1/4W 1.5K
R905	ERDS2TJ222	1/4W 2.2K
R906	ERDS2TJ103	1/4W 10K
R907	ERDS2TJ563	1/4W 56K
R908-910	ERDS2TJ103	1/4W 10K
R911	ERDS2TJ392T	1/4W 3.9K
R912	ERDS2TJ272T	1/4W 2.7K
R913	ERDS2TJ123	1/4W 12K
R914	ERDS2TJ103	1/4W 10K
R915	ERDS2TJ683	1/4W 68K
R916	ERDS2TJ472	1/4W 4.7K
R917, 918	ERDS2TJ103	1/4W 10K
R919	ERDS2TJ471	1/4W 470
R920	ERDS2TJ103	1/4W 10K
R923	ERDS2TJ470	1/4W 47
R925	ERDS2TJ223	1/4W 22K
R926	ERDS2TJ470	1/4W 47
R927	ERDS2TJ223	1/4W 22K
R928	ERDS2TJ103	1/4W 10K
R932	ERDS2TJ183T	1/4W 18K
R933	ERDS2TJ223	1/4W 22K
R934	ERDS2TJ105T	1/4W 1M
R935	ERDS2TJ182	1/4W 1.8K
R936-939	ERDS2TJ103	1/4W 10K
R940, 941	ERDS2TJ472	1/4W 4.7K
R943	ERDS2TJ103	1/4W 10K
R945	ERDS2TJ822	1/4W 8.2K
R968, 969	ERDS2TJ472	1/4W 4.7K
R970	ERDS2TJ681	1/4W 680
R971	ERDS2TJ391	1/4W 390
R975	ERDS2TJ331	1/4W 330
R977	ERDS2TJ103	1/4W 10K
R979	ERDS2TJ153	1/4W 15K

Ref. No.	Part No.	Values & Remarks
R980, 981	ERDS2TJ393	1/4W 39K
R984, 985	ERDS2TJ393	1/4W 39K
R990	ERDS2TJ100	1/4W 10
R994	ERDS2TJ102	1/4W 1K
R995, 996	ERDS2TJ470	1/4W 47
R998, 999	ERDS2TJ2R7T	1/4W 2.7
		CAPACITORS
C1-3	ECEA1HKA010B	50V 1U
C5, 6	ECEA1CU220	16V 22U
C7-9	ECBT1H561KB5	50V 560P
C10	ECBT1H561KB5	50V 560P
C11, 12	ECBT1H102KB5	50V 1000P
C13, 14	ECEA0JKA101B	6.3V 100U
C15, 16	ECQB1H682JZ3	50V 6800P
C17-20	ECEA1EKA4R7B	25V 4.7U
C21	ECEA0JKA101B	6.3V 100U
C25, 26	ECEA1HKA010B	50V 1U
C27, 28	ECBT1H561KB5	50V 560P
C29, 30	ECKR2H121KB5	500V 120P
C31, 32	ECCR1H181K5	50V 180P
C33, 34	ECEA1HKAR47B	50V 0.47U
C35, 36	ECFR1C272JR	16V 2700P
C37, 38	ECFR1C183JR	16V 0.018U
C39, 40	ECFR1C103JR	16V 0.01U
C41, 42	ECFR1C333JR	16V 0.033U
C45, 46	ECKR1H103ZF5	50V 0.01U
C49, 50	ECEA1CKA100B	16V 10U
C53, 54	ECFR1C222JR	16V 2200P
C55	ECBT1H102KB5	50V 1000P
C63	ECEA1CKA100B	16V 10U
C64	ECEA1HN010	50V 1U
C65	ECFR1C103JR	16V 0.01U
C70	ECEA1EKA4R7B	25V 4.7U
C71, 72	ECBT1C332KR5	16V 3300P
C131	ECEA1HK2R2B	50V 2.2U
C132	ECEA1HKA3R3B	50V 3.3U
C133	ECCR1H470K5	50V 47P
C182	ECBT1C682KR5	16V 6800P
C183	ECBA1H681KB5	50V 680P
C184, 185	ECBT1C222JR5	16V 2200P
C186	ECEA1HUR56B	50V 0.56U
C187	ECEA1HKR33	50V 0.33U
C188	ECEA1EKA4R7B	25V 4.7U
C282	ECBT1C682KR5	16V 6800P
C283	ECBA1H681KB5	50V 680P
C284, 285	ECBT1C222JR5	16V 2200P
C286	ECEA1HUR56B	50V 0.56U
C287	ECEA1HKR33	50V 0.33U
C288	ECEA1EKA4R7B	25V 4.7U
C301	ECQP1153JZ	100V 0.015U

Ref. No.	Part No.	Values & Remarks
C302	ECEA1CU221	16V 220U
C303	ECKR1H392KB5	50V 3900P
C304, 305	ECFR1E222KV	25V 2200P
C306	ECKR1H103ZF5	50V 0.01U
C307, 308	ECBT1H221KB5	50V 220P
C309	ECKR1H103ZF5	50V 0.01U
C310	ECFR1E682KV	25V 6800P
C401, 402	ECBT1C152JR5	16V 1500P
C403, 404	ECEA1EKA4R7B	25V 4.7U
C410, 411	ECEA1AU471	10V 470U
C602	ECEA1EU222B	25V 2200U
C603	ECEA1EU102B	25V 1000U
C604, 605	ECBT1C103MS5	16V 0.01U
C606, 607	ECEA1AU101	10V 100U
C608	ECBT1C103MS5	16V 0.01U
C609	ECEA1AU470	10V 47U
C610	ECKR1H103ZF5	50V 0.01U
C611	ECEA1AU470	10V 47U
C701	ECEA1EU101	25V 100U
C721, 722	ECFR1H104ZF	50V 0.1U
C801-804	ECBT1C103MS5	16V 0.01U
C805	ECEA0JKS101B	6.3V 100U
C806	ECBT1C103MS5	16V 0.01U
C830	ECA2AM101B	100V 100U
C831	ECEA1VKS470Q	35V 47U
C832	ECFR1H104ZF	50V 0.1U
C833	ECA1HM471B	50V 470U
C834	ECEA1EU221	25V 220U
C835	ECA1JM101B	63V 100P
C836	ECEA1VKA330B	35V 33U
C901	ECEA0JU102	6.3V 1000U
C903	ECEA1HKA010B	50V 1U
C904	ECEA1EKA4R7B	25V 4.7U
C905	ECEA1HSN2R2B	50V 2.2U
C906	ECEA0JU471	6.3V 470U
C912	ECKT1H122KB	50V 1200P

■ MECHANISM PARTS LOCATION •DECK 1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168 (J971)
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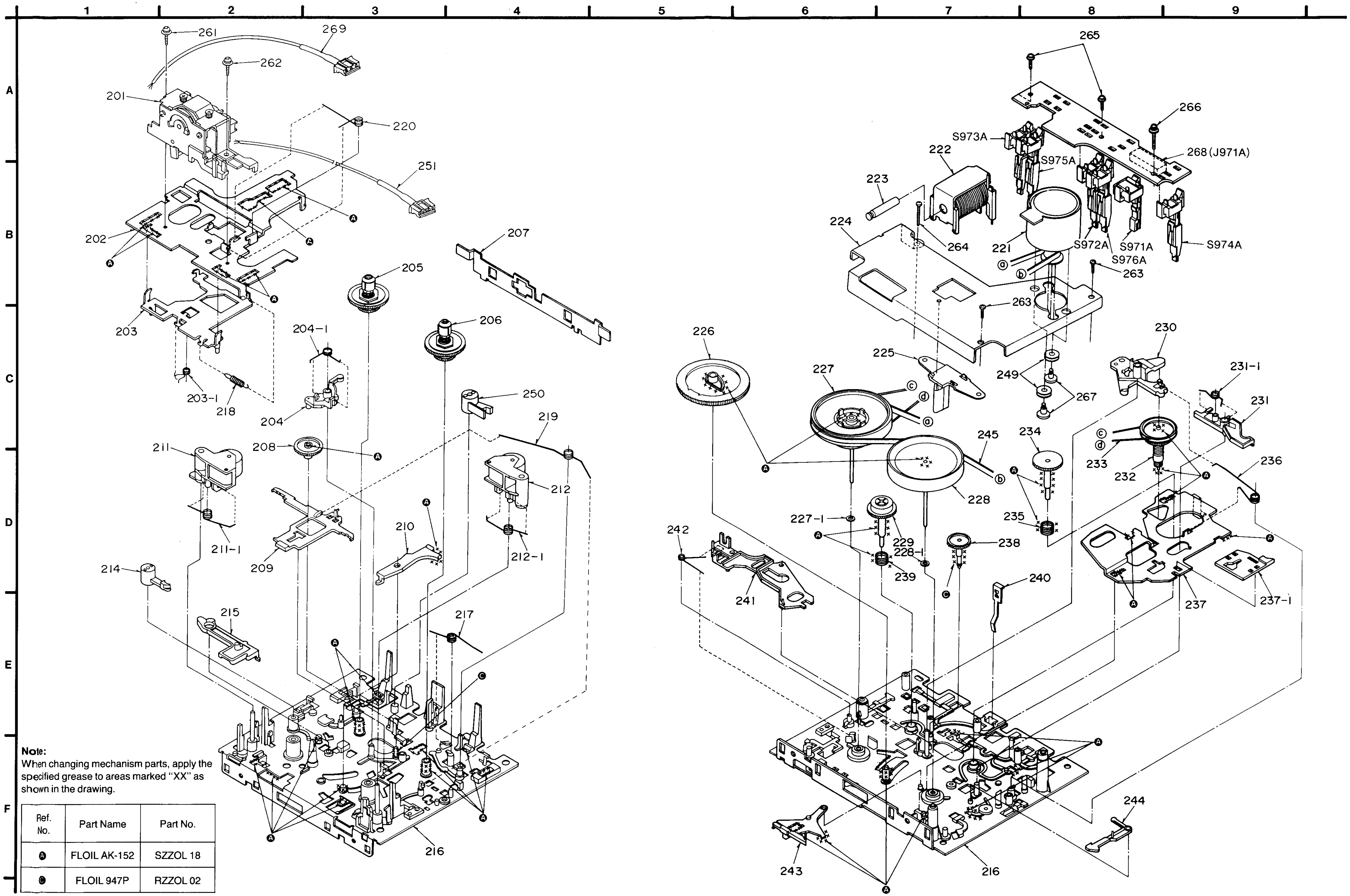
Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZOL 18
Ⓒ	FLOIL 947P	RZZOL 02

Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST	
(DECK1)			
101	RXQ0051-1	HEAD BLOCK(PLAY)	
102	RUA793ZF	HEAD BASE	
103	RZLAR300A	ROD	
103-1	RUW143ZA	SPRING	
104	1UB0089ZA	ARM	
104-1	RUW148ZA	SPRING	
105	1DM0018ZB	REEL TABLE(R)	
106	1DM0017ZB	REEL TABLE(F)	
107	RML0069-1	LEVER	
108	RDG5772ZC	GEAR	
109	RUB508ZB	BRAKET ROD	
110	RUB506ZB	LEVER	
111	1UB0088ZB	ARM(R)	
111-1	RUW141ZA	SPRING	
112	1UB0087ZB	ARM(F)	
112-1	RUW140ZC	SPRING	
114	RNL1ZD	DAMPER ARM	
115	RUB503ZD	MAIN LEVER	
116	RFKRRSCH9N	CHASSIS ASS'Y	
117	RUW142ZA	SPRING	
118	RUD105ZA	SPRING	
120	RUW139ZA	SPRING	
121	RFKPRSCH9N	DC MOTOR ASS'Y	
122	1UE0015ZB	PLUNGER	
123	RUB428ZE	MOVING IRON CORE	
124	RMA0101	ANGLE	
125	RMD5014ZC	ANGLE	
126	RDG5927ZG	MAIN GEAR	
127	1DW0037ZB	FLYWHEEL(F)	
127-1	RNW139ZA	WASHER	
128	1DW0038ZB	FLYWHEEL(R)	
128-1	RNW138ZA	WASHER	
129	1DG0006ZB	REEL TABLE GEAR	
130	RUB513ZD	ARM	
131	1UB0091ZA	LEVER	
131-1	RUW146ZA	SPRING	
132	1DR0011ZB	MAIN PULLEY	
133	RDV90ZB	BELT	
134	RDG5769ZA	REEL TABLE GEAR	
135	RUQ111ZB	SPRING	
136	RUW145ZA	SPRING	
137	1UB0090ZA	ROD	
137-1	RUB512ZB	ROD	
138	RDG5773ZB	GEAR	
139	RUQ112ZA	SPRING	
140	RUS609ZC	TAPE PRESSURE SPRING	
141	RUB514ZC	LEVER	
142	RUW147ZA	SPRING	
143	RUB515ZA	LEVER	
144	RUB509ZA	LEVER	
145	RDV108ZA	CAPSTAN BELT	
148	RUW144ZA	SPRING	
149	RHG3032ZA	RUBBER CUSHION	
150	RNL180ZB	DAMPER ARM	
151	REX0132	LEAD WIRE(4P)	
161	XTW2+6L	SCREW	
162	XTW2+8L	SCREW	
163	XTN26+7J	SCREW	
164	RHE5203ZA	SCREW	
165	XTW2+8S	SCREW	
166	XYC2+JF16	SCREW	
167	RHD26002	SCREW	
168	RJS7T7ZA	CONNECTOR(7P) J971	

Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST	
(DECK2)			
201	RXQ0161	HEAD BLOCK(REC/PLAYBACK)	
202	RUA793ZF	HEAD BASE	
203	RZLAR300A	ROD	
203-1	RUW143ZA	SPRING	
204	1UB0089ZA	ARM	
204-1	RUW148ZA	SPRING	
205	1DM0018ZB	REEL TABLE(R)	
206	1DM0017ZB	REEL TABLE(F)	
207	RML0069-1	LEVER	
208	RDG5772ZC	GEAR	
209	RUB508ZB	BRAKET ROD	
210	RUB506ZB	LEVER	
211	1UB0088ZB	ARM(R)	
211-1	RUW141ZA	SPRING	
212	1UB0087ZB	ARM(F)	
212-1	RUW140ZC	SPRING	
214	RNL1ZD	DAMPER ARM	
215	RUB503ZD	MAIN LEVER	
216	RFKRRSCH9N	CHASSIS ASS'Y	
217	RUW142ZA	SPRING	
218	RUD105ZA	SPRING	
219	RUW144ZA	SPRING	
220	RUW139ZA	SPRING	
221	RFM133ZA	DC MOTOR	
222	1UE0015ZB	PLUNGER	
223	RUB428ZE	MOVING IRON CORE	
224	RMA0101	ANGLE	
225	RMD5014ZC	ANGLE	
226	RDG5927ZG	MAIN GEAR	
227	1DW0037ZB	FLYWHEEL(F)	
227-1	RNW139ZA	WASHER	
228	1DW0038ZB	FLYWHEEL(R)	
228-1	RNW138ZA	WASHER	
229	1DG0006ZB	REEL TABLE GEAR	
230	RUB513ZD	ARM	
231	1UB0091ZA	LEVER	
231-1	RUW146ZA	SPRING	
232	1DR0011ZB	MAIN PULLEY	
233	RDV90ZB	BELT	
234	RDG5769ZA	REEL TABLE GEAR	
235	RUQ111ZB	SPRING	
236	RUW145ZA	SPRING	
237	1UB0090ZA	ROD	
237-1	RUB512ZB	ROD	
238	RDG5773ZB	GEAR	
239	RUQ112ZA	SPRING	
240	RUS609ZC	TAPE PRESSURE SPRING	
241	RUB514ZC	LEVER	
242	RUW147ZA	SPRING	
243	RUB515ZA	LEVER	
244	RUB509ZA	LEVER	
245	RDV108ZA	CAPSTAN BELT	
249	RHG3032ZA	RUBBER CUSHION	
250	RNL180ZB	DAMPER ARM	
251	REX0172	LEAD WIRE(5P)	
261	XTW2+6L	SCREW	
262	XTW2+8L	SCREW	
263	XTN26+7J	SCREW	
264	RHE5203ZA	SCREW	
265	XTW2+8S	SCREW	
266	XYC2+JF16	SCREW	
267	RHD26002	SCREW	
268	RJS10T7ZA	CONNECTOR(10P) J971A	
269	REX0145	LEAD WIRE ASS'Y	

■ MECHANISM PARTS LOCATION •DECK 2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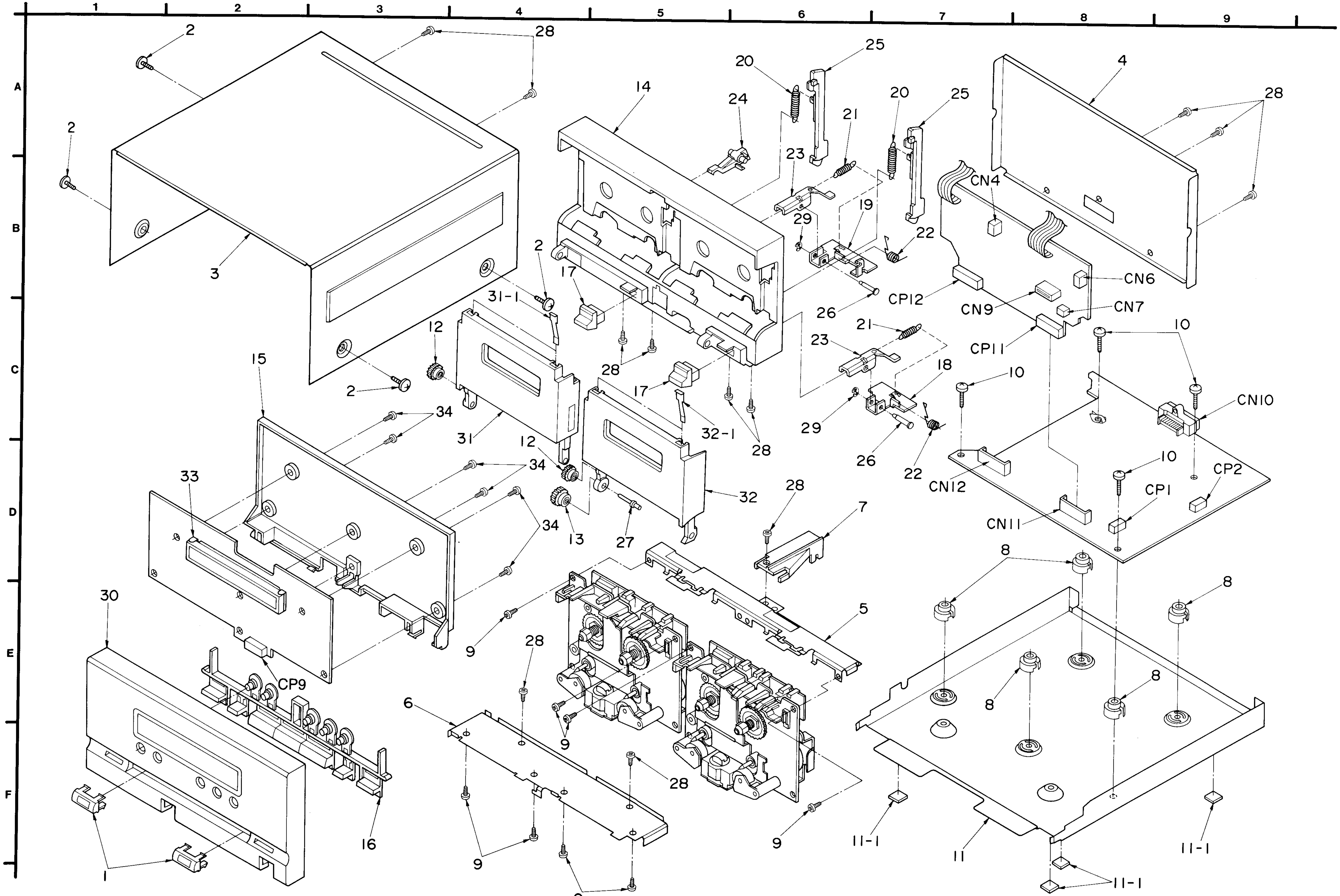
Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZOL 18
Ⓒ	FLOIL 947P	RZZOL 02

■ CABINET PARTS LOCATION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Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RGK0359-K	EJECT BUTTON COVER	
2	RHD30007	SCREW	
3	RKM0105-K	CABINET	
4	RGR0119A-C1	REAR PANEL	(E)
4	RGR0119A-D	REAR PANEL	(GC)
5	RMA0278	ANGLE	
6	RMA0279-2	ANGLE	
7	RMN0127	HOLDER	
8	SHE170-2	HOLDER	
9	XTB26+6F	SCREW	
10	XTB3+12JFZ	SCREW	
11	RFKJSCH7N-K	CHASSIS ASS'Y	
11-1	SHG1654	FOOT	
12	RDG0167	GEAR	
13	RDG0168	GEAR	
14	RGP0198-K	FRONT CABINET	
15	RGP0199-K1	FRONT PANEL COVER ASS'Y	
16	RGU0562-K	BUTTON, OPERATION	
17	RGU0563-K	BUTTON, EJECT	
18	RMA0440	ANGLE	
19	RMA0441	ANGLE	
20	RMB0141-1	SPRING	
21	RMB0160	SPRING	
22	RMB0193	SPRING	
23	RML0221	EJECT LEVER	
24	RML0222	LEVER	
25	RMM0061-1	ROD	
26	RMS0242	SHAFT	
27	RMS0310	SHAFT	
28	XTBS3+8JFZ1	SCREW	
29	XUC2FT	E RING	
30	RFKGSCH7E-K	FRONT PANEL ASS'Y	(E)
30	RFKGSCH7N-K	FRONT PANEL ASS'Y	(GC)
31	RFKLSCH7EAK	CASSETTE HOLDER ASS'Y	
31-1	QBP2006A	SPRING	
32	RFKLSCH7EBK	CASSETTE HOLDER ASS'Y	
32-1	QBP2006A	SPRING	
33	RFKNSCH7N-K	FL HOLDER ASS'Y	
34	XTB3+10JFZ	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks

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